# MARINE RECORD

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## LAKE CARRIERS' ASSOCIATION.

To consider and take action upon all general questions relating to the navigation and carrying business of the Great Lakes, maintain necessary shipping offices and in general to protect the common interests of Lake Carriers, and improve the character of the service rendered to the public.

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## UNITED STATES ENGINEER'S REPORT.

The annual report for 1899 of Major Clinton B. Sears, Corps of Engineers, U. S. A., in charge of the improvement of rivers and harbors on Lake Superior, has just been issued. It is a very elaborate document, containing a vast amount of information of a general and technical nature concerning the work and its character, materials and methods. The report represents a vast amount of work. It contains in addition to the printed matter a large number of prints showing all the details of the work and present progress of the Duluth ship canal and other work under charge of Major Sears. Not the least important part of the report are the statistics of lake commerce at Duluth-Superior and other Lake Superior ports. Since Major Sears has been collecting statistics of commerce at Duluth-Superior the commerce has amounted to $1,161,143,000, and last year amounted to $142,613,000. The system of vessel reports is taken up and accompanies the report. The statistics for the Duluth-Superior harbor are as accurate as it is possible to get them. The valuations of commodities are placed with much care in order to give value to the report on this important feature of the business of the harbor.

## THE NEW REVENUE CUTTER.

The plans for the revenue cutter to be built for service on the Great Lakes have been finished by the engineer-in-chief of the revenue cutter service and proposals for bids to build the vessel will be issued within a short time from the Treasury Department. The bill authorizing the building of this cutter was introduced in the Senate by Senator McMillian of Michigan and became a law during the last session of Congress. The object of the bill was to replace in part the cutters Algonquin, Gresham and Onondaga, which were removed from the lakes to the Atlantic for service in the war with Spain. The new cutter probably will be used on Lake Erie, though it is possible that the increasing needs of patrol sarvice on Lake Ontario will result in stationing the vessel in those waters. The Treasury Department expects that the vessel will be finished in a little over a year. The plans and specifications provide for a vessel of the most approved class. The general hull dimensions are given out as follows: Length over all, 178 feet; length between perpendiculars, 162 feet; breadth of beam, molded, 30 feet; depth at side from base line amidships, 15 feet. The displacement to mean draft of nine feet above the bottom of the keel will be 620 tons, The cutter will be provided with a single screw propelled by the msot improved class of engines.

## LIFE-SAVING SERVICE.

Congressman Weeks has introduced a bill providing that the annual term of service of all men employed in the Life-Saving Service on the rivers and lakes of the United States, be fixed at a period of ten month, from the 1st of March to the 31st of December, and that the salary and pay of surfmen so employed, be $70 per month. This bill was referred to the committee, of which Mr. Corliss will doubtless be a member, as heretofore, and other Congressmen will unite with Mr. Weeks in an effort to secure a favorable report.

## A CLASSIFICATION OF WINDS.

Instructions to local forecast officials of the Weather Bureau and to observers at all stations, state, in future, winds blowing at the rate of one mile an hour and up to nine miles, shall be termed "light;" from ten to nineteen miles an hour, "fresh;" from twenty to twenty-nine miles an hour, "brisk:" from thirty to thirty-nine miles an hour, "high;" from forty to fifty-nine miles an hour, "a gale;" sixty miles and above, "a hurricane."

## TURBINE-DRIVEN BOATS.

In the presidential address to the Institution of Junior Engineers, delivered on the 3d ult., the Hon. Charles A. Parsons, F. R. S., reviewed the history of the steam turbine. He attributed the exceptional speed attained in the Turbinia to the lightness of the macinery and to greater economy of steam. From preliminary trials of the Viper and the Elswick built turbine-driven vessel, it would appear they will also be phenomenally fast vessels.

## THE "SOO" TRAFFIC.

Figures for the Sault ship canal have been computed to the close of November. The total tonnage of the canal was 24,636,552 tons of freight, which is to be compared with a total for the entire year of 1898 of 3,400,000 tons less. This is an increase of 15 per cent.

The great bulk of the lake commerce of the year has been iron ore, which has so far amounted to 13,495,000 gross tons.

Shipments of lumber amounted to 1,032,000,000 feet, for the markets of New York and New England. Coal to the extent of 823,380 tons of anthracite and 3,000,000 of bituminous have been received. This is an increase of almost 300,000 tons in hard coal.

Passengers carried up and down the lakes have increased to almost 50,000 in number, a 20 per cent. improvement.

## PANAMA CANAL.

A dispatch from Paris says that the committee formed by the new Panama Canal Co. has just published a report on the visit made by the delegates of the company to the isthmus where they inspected the canal works, and on the best way to finish the work begun. The report says that works and material handed over by the old Panama company is in a good state of preservation. The plans which have been adopted involve the removal of about 24,700,000 cubic metres of earth for whole cutting, of which 11,200,000 are necessitated by the Culebra mountain.

There are now 3,000 men on the works. In the first year of active work the number will have to be raised to 5,000, and there will be as many as 16,000 at the time of maximum activity. The number of men engaged must average 12,000 during the period of ten years assigned for the complete excavation of the work.

Following is a summary of the expense estimated by the company for the execution of plan No. 2. For work on cutting, 242,000,000 francs; work on locks, 137,000,000 francs; general total of expenses, 512,000,000 francs.

## THAT MONTREAL CONCESSION.

A special from Montreal is sent out as follows: When the Harcourt-Conners syndicate announced last week that the harbor commission had granted it valuable concessions, and that the matter would be closed up and the grant given at a meeting of the harbor commission and representatives of the syndicate, the announcement was far wide of the fact. The matter was not finally closed. On the contrary, the commission decided not to accept the syndicate's offer finally for the present. The commission decided to await the result of the legal proceedings now under way.

The hearing before Justice Pellier in chambers on the application for an injunction to restrain the commission from executing the grant, will come up on Thursday morning. Not only will the harbor commission defer further negotiations with the Harcourt-Conners syndicate until that time, but will wait until the matter is fully settled in the courts.

J. R. Booth, of Ottawa, president of the Canada Atlantic railway, has formally asked the harbor commission to delay final action on the offer of the Harcourt-Conners syndicate for thirty days, to enable the Canada-Atlantic to make a detailed offer in competition with the offer already made by the Harcourt-Conners syndicate. Strong sentiment in support of this request has sprung up, and is increasing. There is a demand that there shall be no attempt to rush through the syndicate's scheme, even if it is partially modified.

## LAKE ERIE-PITTSBURG CANAL.

A bill has been introduced in Congress to empower the Lake Erie & Ohio River Ship Canal Co. to construct a ship canal fifteen feet deep from Pittsburg to some point in Lake Erie, following in general the Ohio, Beaver and Mahoning rivers in Pennsylvania and the Mahoning river in Ohio to a point near Niles, and thence northerly through the state of Ohio to the most accessible harbor on Lake Erie between the Pennsylvania and Ohio State lines and the mouth of the Grand river in Ohio; also to construct a branch canal from the mouth of the Shenango river, in Pennsylvania, and along the river to Greenville, Pa.; also a branch along the Mahoning river from Niles to Warren.

The purpose of this great enterprise is to carry ore to Pittsburg, but its futility lies in the fact that while the canal would have a depth of fifteen feet, the Ohio river has only a depth of eight feet, and is not navigable for lake craft. Nor are the Ohio river craft at all fashioned for lake traffic.

## HYDROGRAPHIC OFFICE NOTICE.

ST. MARYS RIVER.—Mud Lake lower channel—Reported obstruction near range northeastward of Twin Islands.—November 15, 1899, the Steamer S. S. Curry, when passing the steamer Oliver near the range for Mud Lake lower channel, struck heavily forward on some sunken obstruction, dragging her entire length, but reaching clear, and sustaining considerable damage.

According to information furnished by the captain of the S. S. Curry, the obstruction lies on the following approximate bearings as plotted on U. S. Engineers' chart No. 14:

Canadian Range front light East true (E. ¼ S. mag.), distant about $1\frac{8}{10}$ ($2\frac{1}{8}$) miles.

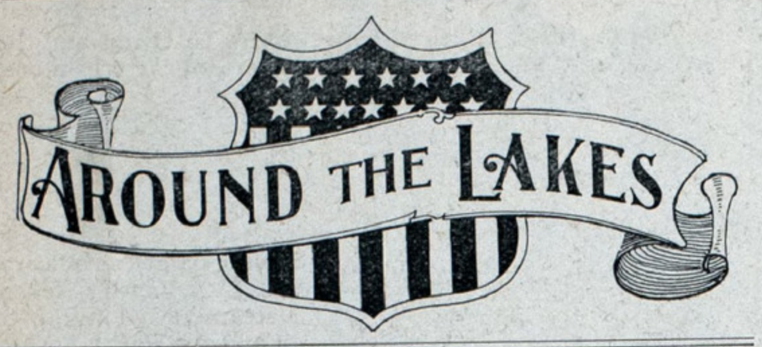
Richardson Point, tangent, N. 17° W. true (N. by W. ¼ W. mag.).

Twin Islands, north extremity, S. 65° W. true (W. S.W. W'ly mag.).

The S. S. Curry was drawing 17 feet 2 inches at the time she struck, and on an even keel fore and aft.

Until this obstruction is accurately located it is advisable to exercise caution when navigating in the vicinity and pass to the southward of the reported position of the obstruction.

By order of the Bureau ot Equipment: J. E. CRAIG,
Capt, U. S. N., Hydrographer.




## CHICAGO.

*Special Correspondence to The Marine Record.*

Henry Burger, shipbuilder, Manitowoc, was in Chicago on Saturday.

The steamer Quito was in the Chicago Ship Building Co's. dock for general repairs and calking.

Capt. R. Cuson, of Detroit, is in Chicago this week, looking after the Whitney boats in winter quarters here.

Light-house keeper Young, of Menominee, has been ordered to keep harbor lights there burning all winter.

The John Plankinton, Robt. L. Fryer and Ashland have received cargoes of corn for winter storage and spring delivery.

W. H. Beach, president and general manager of the Holland & Chicago line, is in the city winding up the season's business of the company.

Capt. Fred Hart has loaded the steamer John Emory Owen with 3½ cent corn for winter storage and spring delivery at Buffalo, and placed her in winter quarters.

A large amount of vessel repair work will be done here this winter. Miller Bros., J. B. Bates & Co., William Saville and Johnson & Knudson all have lots of jobs ahead.

Nearly all the schooner fleet are in winter quarters. The only schooners belonging to this port now on Lake Michigan are the Cora A, York State, Guido and Julia B. Merrill.

The suit of the schooner Apprentice Boy against the Ott Lumber Co. for freight on a disputed cargo, has been settled by the lumber company giving a check for the amount.

The steamer Oregon is in dock, and Capt. Davis, of Milwaukee, on behalf of the underwriters, and James B. Bates, of this city, on behalf of her owners, have been surveying her.

Marine business is far from being closed at Milwaukee, and before the last boat arrives from the lower lakes the shortage of coal will be relieved materially. A canvass of the situation shows that twenty coal cargos are due there yet before the end of the season.

The schooner Commerce, Capt. Edw. Mullen, which went ashore off Kenosha last week, was released by the tug T. T. Morford, after her deck load of cedar ties had been transferred to car-ferry A, and the water pumped out of her hold. The schooner was towed to this port, and after unloading she was put into one of Miller Bros.' drydocks for examination, when it was ascertained that she was but slightly damaged, and some calking on her stern was all the repairs required. Capt. Mullen is glad that his schooner is safe in port ready for one more good season's work.

Active chartering of vessel room for winter storage here and for shipment to Buffalo in the spring has already begun. Regular grain shippers who are familiar with the situation and are therefore cognizant of the fact that many of the regular grain vessels trading from this market have been taken by the ore shippers, are not inclined to haggle much over prices, particularly as the available fleet here is much smaller than usual. The rate has started at 3½ cents to Buffalo, including the storage here, and there is every prospect that considerable business will be done at that rate.

There will be no line steamers between Milwaukee and St. Joseph, Mich., in connection with the St. Joseph, South Bend and Southern Railroad this winter. The matter was definitely decided yesterday, therefore for the first time in years winter east-bound freight, which was transferred in great quantities by water, will be disposed of at Milwaukee by railroad. Owners of the steamer Lawrence were willing, and in fact, were waiting to enter a contract with the railroad, but owing to the scarcity of cars and no possible relief in sight, railroad officials decided not to charter the steamer.

The steamer Mary, owned by the Graham & Morton Transportation Co., was destroyed by fire, at St. Joseph, on Saturday morning. Capt. W. A. Boswell, of the steamer City of Louisville, was asleep on the boat at the time and narrowly escaped with his life. He was awakened by the smoke, and in a few minutes more would have been overcome. The origin of the fire is unknown. The furnace and parts around the engines were well protected with asbestos, and it is believed the fire originated from some other source. The Mary came here on Nov. 20 from Port Huron. The boat was to have been operated by Graham & Morton on the Chicago-Waukegan-Kenosha route, and the work of refitting her was already well under way.

Vessel owners are preparing to register a strong protest this winter, against the way the piers and protection to Chicago bridges are maintained. They say that the piling and timbers around the bridges and their approaches are not kept in repair, and that much damage is done on account of the rottenness of timbers. A marine man yesterday said: "The condition of the city's property along the river is deplorable. Half the piling in the center piers is ready to fall down the minute a steamer rubs against it. The course of the bridge department looks as though they were trying to drive vessels away from here all the time. The river is narrow and crooked, and all bridge piers and protections should be constructed strong enough to allow boats to rub against them without breaking down."

Capt. John B. Lucas, editor of the Black Diamond, the organ of the coal trade, says: "While there are quite a number of coal cargoes coming to Lake Michigan, there are none headed for Chicago. They are all big boats and are unable to get up the Chicago river with their cargoes. For this reason the cargoes headed for Lake Michigan will go mainly to Milwaukee, Manitowoc and other points. A number of boats will also go to the head of the lakes, mainly to Duluth-Superior, and a few will go to Ashland. Except for the river obstructions there would be quite a large number of coal cargoes in here before the close of navigation, as this market certainly can use the coal. There is a big shortage here as well as at all other lake ports. The Duluth-Superior shortage up to last Friday was 280,000 tons of bituminous alone, as compared with the stock of a year ago."

## BUFFALO.

*Special Correspondence to The Marine Record.*

There is every indication that we will have a large fleet here this winter, already a dozen boats are in winter moorings holding their grain cargoes and I learn that about thirty more large steamers are expected to make floating warehouses before the season closes.

The south-west gale here on Tuesday sent the water in the harbor so that several vessels broke away from the docks and great care had to be taken to prevent serious damage being done. The wind reached a force of sixty-five miles an hour and is reported as being the hardest gale of the season. No vessels left port but there were two arrivals during the gale.

The Centurion fouled the W. D. Rees in the harbor on Tuesday and dented a couple of her plates. Capt. Morton, ships-husband of the Wilson fleet, came here at once from Cleveland to survey the damage and to attend to other marine business. The Wilson line boats are kept in service from the earliest opening of navigation until the latest closing date and the fleet is one of the best handled on the lakes.

It is reported that John L. Crosthwaite and others, are preparing to build one or two steel steamers suitable for taking to the coast, where it is believed there will, in the near future, be better business than there is on the lakes. With the Canadian canals completed, this trip can be made with much more readiness than ever before. So far the bids for the work have been so high that it is not likely any will be accepted until the cost of material gets lower.

The greatest loss of the season is that of the Canadian steamer Niagara, from Georgian Bay to this port with lumber. The Niagara was sighted off Long Point in a disabled condition last Tuesday, since which time her wreckage has been strewn along the north shore and no further hope is experienced that any of her crew escaped. The Niagara was owned by the Mathews Bros., of Toronto, and carried 16 hands all told, most of whom hailed from St. Catherines. Both engineers were Toronto men, and the captain, Henry McClory, was from Port Colborne. The vessel was uninsured, but the cargo was covered for $8,200.

William J. Connors returned home from Montreal this week. He had been for some time in Canada completing the negotiations for a grant of water-front property on which elevators and terminals will be constructed. The Harbor Commission of Montreal, with the approval of the Minister of Public Works, the Hon. J. Israel Tarte, granted every concession which Mr. Conners and the other members of the American and Canadian syndicate asked. Mr. Conners expressed himself as greatly pleased with the outcome of his efforts in the Canadian city. Mr. Conners says that the grain trade of Buffalo fell away this year 70,000,000 bushels; the grain trade of Montreal fell away this year 15,000,000 bushels. Also that the rail routes, and not Buffalo, will be the competitors of the Montreal route.

The lumbermen, and manufacturers and business men of Tonawanda are thoroughly aroused over the proposition to dam the Niagara river. They say that such a step would destroy the great lumber trade and the manufacturing and commerce at one sweep. Organized and determined efforts will be made to defeat the bill if it passes Congress. The fight will be carried into the Canadian Parliament. A ship canal from Buffalo to Tonawanda will not do, say those who have millions invested in lumber yards and iron manufacturing industries. They will oppose to the end the Corliss bill, believing that it menaces millions of invested capital. In fact, the idea of stopping the flow above Tonawanda is pronounced as visionary, not impracticable, but ruinous to many interests. It is thought that if levels must be maintained, the starting point should be at the Straits of Mackinac or at several different places in the rivers, commencing, perhaps, at Port Huron and continuing the lock gates wherever desirable from there down. I find quite a difference of opinion, however, on the subject, as what one says is right, the other maintains is wrong, but the general opinion is that damming Niagara is not quite the principle to pursue.

## CLEVELAND.

*Special Correspondence to the Marine Record:*

Mr. L. C. Waldo, of Detroit, visited this port on Wednesday.

Coal to Lake Michigan and iron ore from Escanaba is paying $1.25.

Capt. James Davidson of West Bay City and Mr. John Craig, Toledo, were here this week.

Capt. Ben Tripp, who has been piloting on Georgian Bay, for the past several weeks, has returned home.

The last ore cargo left Two Harbors on Tuesday. Escanaba is still shipping and will, until the ore freezes in the pockets.

The M. E. B. A. hold the first meeting for the winter this evening, some of the members are yet sailing, but a large attendance is expected.

Capt. W. C. Richardson is visiting Lake Michigan ports, seeing that his fleet are properly laid up, etc. There are several boats of the line at Milwaukee.

It is now almost assured that American capital will build elevators and also a fleet of boats to utilize the fourteen-foot waterway to the coast, via the St. Lawrence system of canals.

Capt. Charles Roach brought the tug Lutz here from Chicago a few days ago, although in service all the time this is the only visit Capt. Roach has made to Cleveland in the past thirty-eight years.

All of the branch hydrographic offices should have a telephone connection. The Navy Department pay no rent for these branch offices and the appropriation for their up-keep ought surely to include telephone charges.

The D. & C. line completed the season this week, the last trip west being made by the City of Detroit on Wednesday night. The manager here, Mr. D. C. McIntyre, says that this has been the most prosperous season on record in both the freight and passenger business.

A. R. Rumsey, shipping master for the Lake Carriers' Association has sent out invitations to his twentieth annual fish dinner to be given at the dock offices on Friday, Dec. 15th. The spread is usually an enjoyable one and Professor Rumsey does all in his power to please and entertain his guests.

Congressman T. E. Burton will retain his appointment as chairman of the river and harbor committee. It is said that there is no member so well qualified for this position than Mr. Burton is, and vessel owners seem well pleased to have Mr. Burton again at the head of this very important committee.

The annual meeting of the Lake Carriers' Association will be held at the Cadillac Hotel, Detroit, on January 17. A subject to be brought under discussion is the Buffalo grain contract on rates for unloading. An endeavor will be made to have this question settled in a more satisfactory manner than formerly.

Lieutenant Robert L. Russell, of the United States Navy, opened the naval recruiting office this week at No. 53 Public Square. In a few days the recruiting station will be in full operation. Two applications for service in the navy were received on Tuesday. Machinists, seamen, ordinary seamen, and landsmen will be enlisted.

Mr. J. R. Parker, all season the chief officer of the Wilson Transit Line steamer Andrew Carnegie, now in winter quarters in Buffalo, arrived here on Tuesday and called upon his many marine friends and former shipmates. Mr. Parker is energetic, well-posted and reliable, besides having the best interests of his employers in view.

The aids to navigation at the mouth of Detroit river have been taken away, by order of the inspector in charge of the district, and vessel owners are justly indignant over the premature removal of these marks, especially as there is a large fleet of boats still at work, and every aid for safe pilotage is required during the closing days of the season.

The steamer Pennsylvania will be renamed Mataafa. This is the rule of the Minnesota Steamship Co., which provides for names for its vessels beginning with the letter M and ending with the letter A. The Pennsylvania was purchased on the stocks last winter from A. B. Wolvin and was run for the season under the original name.

The Minnesota boats and the Gilchrist fleet, which were uninsured all the season, will keep on till actually stopped by ice in the rivers. These companies with their large fleets claim that it is cheaper for them to pay no insurance and run the risk of a possible loss than to keep insured, and their running this season would seem to justify the old-time policy.

The gale of Tuesday was a snorter, and the heaviest blow of the season. Capt. Montague, in charge of the steamer W. R. Linn, walked along with his consort the Carrington, and made nearly ordinary time between Conneaut and Detroit. The Linn is a large, powerful steel steamer, at the same time much credit is due for skillful handling in such a blow as we had on Tuesday.

There are a number of boats still at Ohio ports which are to load coal for up the lakes. There is a fleet of a dozen or more boats that intend to make another trip, and some intend to load ore for a down trip. Most of these boats will get started up the lakes before the last of the week, but others will not be able to get away until the first of next week. There is plenty of coal at the Ohio ports, so that as fast as the machinery can load them they are dispatched.

A division of boats of the Lake Superior Iron Co., in which the Oliver Iron Mining Co. and the Cleveland-Cliffs Iron Co. are interested has been made. There are six steamers in the fleet, and the Andaste and Choctaw will hereafter be operated by the Cleveland-Cliffs Iron Co., and the Joliet, La Salle, Wawatam and Griffin will remain in the office of the Oliver Iron Mining Co. The latter company bought three-fourths of the stock of the Lake Superior Co., and the Cleveland-Cliffs Iron Co. the balance.

While the marine insurance policies of 1898 were liberal to vessel owners, the policies of the past season were drawn by the underwriters for their especial protection. Rates were higher than in 1898, and navigation was cut down from Dec. 12 to Dec. 1 and 5. There were a lot of provisions in the policies, greatly to the disadvantage of the owners. In the end, however, the changes made no great difference, for the season has passed with no big total losses, and with perhaps less than one-quarter of the partial lossess of its predecessor.

The double track system, or the up and down bound channels, advocated by Capt. Thos. Wilson, is sure to prevail in the near future. The casualties of the present season in tho "Soo" river and at the St. Clair Flats canal point stronger than ever to the necessity for duplicate channels in the connecting links of the lakes. Several vesselmen whose opinion on the subject I asked this week, said, that the project ought to be carried out as it has the safest and best idea yet suggested, and that commerce would demand such facilities in the near future.

## DULUTH—SUPERIOR.

*Special Correspondence to The Marine Record.*

The Joliet loaded the last cargo of ore carried out of Marquette this season and a Minnesota boat the last from Two Harbors.

The Empire City loaded here on Saturday, and this will probably be the last ore cargo of the season from Duluth. On Friday there were several clearances with grain.

Ranged, according to the quantity of ore shipped, the several ports now rank as follows: Two Harbors, Escanaba, Duluth, Ashland, Marquette, Superior and Gladstone.

White Bros., of West Superior, have commenced piling for the new Calumet & Hecla merchandise wharf at Lake Linden. The dock will be 40 feet wide and 1,500 feet long.

While the winter fleet at Chicago will be a small one, the fleet at Duluth will be unusually large. It is estimated that the fleet here will have a wheat storage capacity of 2,500,000 bushels.

Marquette has finished the biggest season in ore shipping in the history of that port. In round numbers there has been shipped 2,720,000 tons. This is the record total for that port and is nearly a half million tons in excess of what was done last year.

Coal is being shipped to Duluth all rail from Virginia. This is the first time in the history of the coal business in the Northwest that coal has ever been ordered to Duluth all rail. The shortage in coal at the head of the lakes has not been made up and there is a shortage of about 400,000 tons of soft coal requirements for the winter.

The wisdom of Major Clinton B. Sears, Corps of Engineers, U. S. A., in advising that the harbor at the head of the lakes be unified and put under the continuous contract system has been widely endorsed. The deepest draft boats can now traverse the channels of the Duluth-Superior harbor on either the upper or the lower bay. There is 20 feet of water in all of the main channels from both the Duluth ship canal and the natural entry opposite Old Superior to all of the channels or slips leading to the principal points for the receiving or forwarding of freight.

The Duluth, Missabe & Northern road has awarded a contract to Barnett & Record for the construction of a third ore dock in Duluth. The dock will be situated immediately west of the Missabe dock No. 2 and will be one-half the length of that dock. The new dock will have 192 pockets. This new ore dock will give Duluth the distinction of having the biggest ore dock plant on the lakes. No. 2 Missabe dock is the largest ore shipping dock on the lakes if not in the world. Its capacity is 69,120 tons. The new dock will increase the season shipping capacity of the Duluth docks more than 1,000,000 tons.

Figuring the average freight rate on lumber the head of Lake Superior for all of the last season at $2.70, which is believed by the best posted lumber and freight men of Duluth to be very nearly accurate, the lumber carried by lake from Duluth, Superior and Two Harbors paid vessel interests $1,200,000 in freights. According to custom house reports the shipments from the three points named above were 414,500,000 feet for the season. These figures are estimated to be 20,000,000 below the actual shipments. Including the rail shipments it is figured that the head of the lake districts shipped 450,000,000 feet of lumber during the year. Shipments by lake alone from the head of lake ports were 60,000,000 feet more than that of last year. Of the total movement Duluth contributed 65,000,000 feet.

"THE Shellbacks, by Alex. J. Boyd, just published by Brentano Bros., Union Square, New York, is a story of sea-life before the mast on an American ship in the sixties. It is edited by Archie Campbell, with an introduction by Morgan Robertson, the latter gentleman expatiating upon the despotic cruelty which has characterized and been somewhat typical of the past officers of American sailing ships.

## DETROIT.

*Special Correspondence to The Marine Record.*

The hull of the burned steamer Aurora will be rebuilt this winter at Port Huron.

Port Huron wants to cut a canal from Lake Huron to flow through Black river, and asks the citizens to vote $75,000 for this purpose.

The D. & C. line boats will be most elaborately refitted this winter. Special work will be put on the boats of the Lake Huron division.

Mr. A. A. Parker, of the firm of Paker & Millen, has not been having the best of health during the past year or two but he is now in tip top style and feeling better than ever.

The new steamer recently built at Wyandotte, by the Detroit Ship Building Co., and now under completion, will be named the Admiral, she has already been chartered for next season.

Copper will be shipped by rail this winter from Houghton. The last lake shipments have gone, although navigation is still open. The shipments will be made as fast as the ore is smelted.

It is regretted that Mr. Frank J. Firth, president of the Lake Carriers' Association, will not attend the coming annual meeting. Mr. Firth leaves Philadelphia for Europe in the course of a few days.

Mr. Barter for the seventeenth time has been elected president of the Detroit Longshoremen's Union. He will represent the International Longshoremen's Association in the American Federation of Labor convention.

The Detroit Ship Building Co. will be one of the busiest firms in the city this winter. There is already enough work booked ahead to insure steady employment for a small army of men, and orders for new as well as extensive repair work are still being received.

In order to secure a proper completion of their final report, the Deep Waterways Commission has written Senator McMillan that $20,000 additional appropriation will be needed, and it is asked that this be put in the deficiency bill at the coming session of Congress.

The ice-crusher Algoma has been chartered by the Ann Arbor railway to run between Frankfort and Menominee during the coming winter to assist the car ferries in keeping the channel open via Sturgeon Bay, and also to carry package freight. She will begin business Jan. 1.

Capt. Reaney, in charge of the Detroit office of the lighthouse service, has been informed that the following lights on the Great Lakes have been extinguished for the season: The old Lake St. Clair channel range, Spectacle Reef, Passage Island, Isle Royale, Standnard Rock and Huron Point.

A fire took place in the Wyandotte yards of the Detroit Ship Building Co., on Wednesday, the engine house and molding loft were destroyed. Although the actual loss is covered by insurance, many valuable models, patterns, etc., were lost. The buildings will be replaced and work will be carried on as usual.

Capt. J. S. Van Rensalaer, late of the barge Nasmyth, died at Marine City on Tuesday. The remains will be brought here. Capt. Van Rensalaer was 44 years of age. He formerly owned and sailed the schooner Camden. He was a member of the Shipmasters' Association, and several other fraternal orders.

The keel of the wooden steamer building for Corrigan of Cleveland, has been laid at the Anderson shipyard at Marine City. The new boat will be 150 feet long, with a beam of 38 feet and 9 feet depth of hold. It is thought here that Capt. Corrigan is looking out for a little of the future Welland canal trade, and wants something that can go on down to Montreal when desired.

John C. Shaw, Esq., and Wm. B. Cady have been retained by the Northern Steamship Co. in the recent collision case between the North Star and Siemens. A trade journal, published at Cleveland, blamed the Star for the casualty, but the ravings of a cobbler, or an ordinary newspaper reporter can't be taken aboard as expert evidence in a collision case, even if someone told him what to say.

Capt. Geo. England, of Detroit, and others, bought the steamer V. H. Ketcham, this week, from W. H. Mack, W. H. Becker and others, of Cleveland, for $55,000. The Ketchem was built by Lester, at Marine City, in 1874. The Mack-Becker combination bought her from Pickands, Mather & Co., about eight years ago, for the same price she sold at yesterday. The Ketchum is being laid up at this port.

The south-west gale of Tuesday drifted the water below this port down to a neat sixteen feet, if not a little lower, the larger class of vessel had to wait for a raise and others sheltered until the below was over. The fluctuation in levels being so large and various, the talked of obstruction at Niagara, to control surface levels is looked at with some degree of uneasiness and it is said that nothing less than lock gates and valves can regulate the depths.

The articles of incorporation of the National Steamship Co. have been filed, and Saturday the stockholders met and elected their board of directors, John G. Keith, of Chicago, A. McVittie, M. E. Farr, F. E. Kirby and B. C. Calder, of Detroit. The board then elected the following named as officers: President, A. McVittie; vice-president, J. G. Keith; secretary and treasurer, M. E. Farr. The steamers belonging to the corporation are the Ira H. Owen and the Parks Foster. Both are under charter to carry iron ore. Mr. McVittie will assume the general management of the new company.

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Figuring the average freight rate on lumber from the head of Lake Superior for all of the last season at $2.70, which is believed by posted lumber and freight men of Duluth to be very nearly accurate, the lumber carried by lake from Duluth, Superior and two Harbors paid vessel interests $1,200,000 in freights. According to custom house reports the shipments from the three points named above were 414,500,000 feet for the season. These figures are estimated to be 20,000,000 feet below the actual shipments. Including the rail shipments it is figured that the head of the lake districts shipped 450,000,000 feet of lumber during the year. Shipments by lake alone from the head of lake ports were 60,000,000 feet more than for last year. Of the total movement Duluth contributed 65,000,000 feet.

Relative to the requirements of lake channels there are few men better posted than Mr. H. J. Livingston, ex-president of the Lake Carriers' Association. Mr. George Y. Wisner, civil engineer and a member of the Deep Waterways Commission said this week. "Our work on the proposition to widen the channel through the lakes has been along the lines proposed by President Livingstone, in a speech before the International Deep Waterways Association in Cleveland in 1895. Mr. Livingstone outlined the needs of the new lake marine very carefully, so far as the Detroit river and the Lime Klins Crossing were concerned, and we have enlarged upon the outline, extending the proposed channel through the entire chain of lakes. With the exception of a few points in the St. Clair river, the channel in that stream above the Flats is of liberal width. We find it necessary to suggest the cutting off of a few projections at bends in the stream in order to make the channel as straight as possible and to give a safe width."

## FLOTSAM, JETSAM AND LAGAN.

There is a report that the Montreal Transportation Co. will purchase the Mooers Co. elevator at Kingston, Ont. The elevator of the Montreal Transportation Co. has not sufficent capacity for the company's grain trade.

P. T. or private terms, means that the vessel has taken a rate below the market and is ashamed of it, or that the rate was above and the captain is unwilling to let his brother captains participate in a good thing.—American Shipbuilder, New York.

It has been learned that the car ferry Shenango will run this winter between Conneaut and Rondeau instead of between Conneaut and Port Stanley, as she did last year. The change is made to connect with the Lake Erie & Detroit Railroad, which has chartered the ferry.

It is quite impossible for anybody not directly connected with the present improvements of the Duluth-Superior harbor to comprehend the enormous extent of the improvements that are being accomplished in a comparatively short period. Under the continuous contracts for the improvement of the harbor as much will be accomplished in five years as would have been accomplished in a quarter of a century under the old system. The total amount of material dredged from the Duluth-Superior harbor during the first three years of the continuous contract system, 1897, 1898 and 1899, is in round numbers about 10,000,000 cubic yards.

It was in the harbor of Malta one day that a midshipman, of about 4 feet 8 inches, addressed himself to the 6-foot-2 captain of his first seagoing ship. The captain looked down upon the boy, smiling, and good naturedly said: "Well, youngster, so you have come to join, eh?" "Yes, if you please," meekly responded the youthful officer. "Is it the same old story, 'sent the fool of the family to sea?'" "No sir," quickly responded the lad. "Oh no; things have changed since your time." "Go away," roared the captain, and the middy flew below as fast as his little legs could carry him.—Cornhill Magazine.

The loss of the Canadian steamer Niagara with her entire crew on Lake Erie, brings the list of lives lost for the season in navigating the Great Lakes to 100. Of these fifty-one were lost by the foundering of ships, and thirty-two were lost overboard. Six received fatal injuries by falling through open hatchways. The season, although far below any other during the past decade in losses of property, exceeds last year in the number of lives lost. The record is as follows: 1896, 66; 1897, 68; 1898, 95; 1899, 100. The Niagara furnishes the largest number in any one disaster, Other losses were: June 29, steamer Margaret Olwill, foundered on Lake Erie, 9 lives; Aug. 20, schooner Hunter Savidge, foundered on Lake Huron, 5 lives; Sept. 6, schooner Lisgar, foundered on Lake Huron, 5 lives; Oct. 14, schooner Typo, sunk by collision on Lake Huron, 4 lives; May 11, schooner Nelson, foundered on Lake Superior, 7 lives.

## LIGHT-HOUSE ENGINEERING.

Abstract of Paper by Mr. J. A. Purves, D. Sc., F.R.S.E., read before the Institution of Engineers and Shipbuilders in Scotland, on October 16th, 1899.

The history of lighthouses dates from the earliest days when such shipping as then existed was warned and guided by means of open fires kindled upon projecting headlands or other elevated sites. The next advance seems to have been made by the Libyans and Cushites, dwellers in lower Egypt, who made use of watch-towers during the day, which were used as beacons at night, open fires being lit upon their summits. These, however, are largely conjectural, and the first actual lighthouse, of which a written account exists, appears to be that of Sigeum, which was erected by Lesches, author of the "Little Iliad," sometime about the year 744 B. C. Following upon this comes the world-famed Pharos of Alexandria, one of the seven wonders of the world. This lighthouse, which has given the name of Pharology to the science of lighthouse engineering, was, according to Pliny, built by Sostratus, by command of Ptolemy Philadelphus, about the year 284 B. C. According to other writers, the building was square in cross section, consisting of many storeys, which diminished in size toward the top. Its height is given as equal to 512 English feet, and the cost has been calculated as equivalent to £195,000 in modern money, and we are told by Josephus that the fires lit upon the summit were visible for about 29 geographical miles. With the rise of the Roman Empire, coast illumination progressed rapidly, and lights are mentioned as existing at Ravenna, Puzzoli, Ostia, and elsewhere. The lighthouse at Corunna, in Spain, is perhaps the oldest existing tower now used as such, dating from the days of Trojan, A. D. 98-117. At Dover Castle there are remains of a Roman tower, built about 53 A. D., which is supposed to have been used as a lighthouse; there is also reason to believe that the Romans established a light upon Flamborough Head, and another on the coast of Flintshire.

The first actual tower which was built with the express and sole object of a lighthouse seems to be the Tower of Corduan, in the Bay of Biscay, which may be taken as the starting point of the modern lighthouse engineering. The Lighthouse Tower of Corduan guarding the mouth of the river Gironde, was designed and executed by Louis de Foix, in the reign of Henry IV. of France, and was completed in the year 1611, having taken 26 years to build. In many ways this tower may still be looked upon as the finest lighthouse in the world, and its form remains practically unaltered, even after a lapse of 300 years.

Next in importance and order of date, is the Eddystone. This lighthouse, which has probably attracted more public interest than any other, marks the Eddystone rocks, lying some fourteen miles off Plymouth. The first actual attempt to erect a permanent building was made in 1696 by Henry Winstanley, who undertook to establish a lighthouse upon the rocks. The work was commenced in that year, and completed in four years. It consisted of a cylindrical lower portion of masonry 16 ft. in diameter, above which was the gallery and lantern. The total height of the building was 80 ft., and the light was first exhibited in 1698. A year later, it was deemed advisable to increase the diameter of the building, and to increase the total height to 120 ft. This was completed in 1700. In November, 1703, the entire structure was washed away, and the unfortunate Winstanley, who then happened to be in the tower, perished amidst the wreck. In 1706 Mr. Rudyerd undertook the erection of a new tower. This consisted in its lower portion of timber work, bolted together and to the rock, and above this were placed stone courses surmounted in turn by a second course of wood work. Despite the composite nature of this structure, it weathered the storm for forty-six years, and its final destruction was caused not by water, but by fire. Following upon Rudyerd's tower comes the ever memorable Tower of Smeaton. This triumph of engineering skill has served as the model from his day till ours of all rock towers. It was begun in 1756, and completed in 1759. The building was entirely of stone, the individual blocks of which averaged one ton in weight. These stones were all dovetailed together from Smeaton's design, which was the first in which dovetailed joints were employed. The total cost of the work amounted to £40,000 the cost per cubic foot of structure being £2 19s. 11½d.

In 1877 it became apparent to the Trinity House that, although the tower was still in good preservation, the rock upon which it was built was showing signs of being undermined by the action of the sea, and it, therefore, determined to erect a new lighthouse some 120 feet S.S.E. from the site of the old one. The building was commenced in 1878, and completed in 1882. The curvilinear outline of the old Eddystone and of other towers had the effect of raising the center of pressure of each impinging wave, and this led Sir James Douglass to design his towers with a cylindrical base carried to 2½ ft. above high water; above this, and set some little distance in, is the curvilinear structure, which is really a concave elliptical frustum. The base is 44 ft. in diameter and 22 ft. high, while the total height of the tower is 173 ft. The tower is solid for 25 ft. 6 in. above high water, while the walls, which are 8 ft. 6 in. at the bottom, taper to 2 ft. 3 in. at the thinnest part of the service room. All the stones, which are of Cornish and Scottish granite, are dovetailed both horizontally and vertically. The lower courses resting upon the rock are sunk to a depth of one foot, and bolted to the rock by Muntz metal bolts. The lantern surmounting the tower is of the helical type, while the optical apparatus which it contains is of the biform group flashing type, giving two groups of two flashes in quick succession. The maximum candle power of this apparatus is about 79,000, the luminary being a six wick burner. This lighthouse is further provided with fog bells, which are actuated by means of the same mechanism which rotates the apparatus. The total cost of this building was £59,255, equivalent to 18s. 2d. per cubic foot of building. The work was executed under the personal superintendence of Mr. W. T. Douglass, son of the late Sir James Douglass.

The Bell Rock lighthouse, which marks the dangerous reef of rocks known as the Bell or Inchcape Rock, lies some twelve miles off the coast of Forfarshire, and fully exposed to the waves of the North Sea. The lighthouse was begun in 1800, and its site is 16 ft. below high-water mark, or just above the level of low-water spring tides. The tower was designed and carried out by Mr. Robert Stevenson, who, in a measure, took the Eddystone of Smeaton for his model. He, however, increased the thickness of the walls as compared with the Eddystone, and carried the solid portion to a greater height.

Next in order of date is the Skerryvore Lighthouse, off the Argyllshire coast. This tower, the cone of which is hyperbolic, was designed by Mr. Allen Stevenson. The work was begun in 1838 and was not completed till 1843. The tower is entirely of granite. It contains 58,580 cubic feet of masonry, and its total cost amounted to £72,200 11s. 6d., equal to £1 4s. 7¾d. per cubic foot of structure. The apparatus used in this tower is an eight-sided first-order, with a power of beam eqnal to 44,000 candles. The light gives one flash every half minute.

The tower of Les Baleines, built upon the I'le de Re on the west coast of France, was completed in 1854.

The La Coubre Lighthouse is also upon the west cost of France. The tower is cylindrical and of masonry; its height is 172 ft. The building was completed in 1860, and in 1895 a new electric apparatus was installed to replace the old oil one.

The Wolf Rock Lighthouse, off Lizard Point, was designed by Mr. James Walker and was begun in 1862. Its height is 116½ ft., its diameter at the base 41 ft. 8 in., diminishing to 17 ft. at the top. The solid portion is carried up to 39 ft. 6 ins. The form of the tower is an elliptic frustum of a cone.

The Dhu Heartach Lighthouse is 14 miles from the Island of Mull. The tower is parabolic in outline, and is entirely constructed of granite, its height being 145 ft.

Roches Douver, on the north coast of France, is a handsome iron structure, 182 ft. in height, built in 1879. The apparatus employed has a candle power of 28,800.

Cape San Thome, this iron lighthouse was constructed by Messrs. Barbier and Benard, of Paris, and erected for the Brazilian Lighthouse Service in 1882. Its total height is 148 ft.

The Bishop Rock Lighthouse, situated upon the westernmost part of the Scilly Islands, is exposed to the full stretch of the 3,000 odd miles of the Atlantic. The site is of historic interest, being the scene of the disaster which fell upon Sir Cloudesley Shovel's squadron in 1703. In 1847 the Trinity House began the erection of an iron open work structure upon the Bishop Rocks.

The most recent continental lighthouse towers is Penmarch. Although a land and not a rock station, it is well deserving of attention. The tower, built entirely of granite, was only completed in October, 1897. It guards the prominent headland of Cape Finisterre, and it owes its being largely to the generous bequest of the Marquis de Blocqueville, who left the sum of £12,000 for the erection of a lighthouse to adequately protect the coast. The height of the tower above the ground is 207 feet, while in addition to the tower are the dwelling, dynamo, siren, and engine houses. The luminary in this lighthouse is an electric arc, and the apparatus is of the twin type, where both are mounted side by side upon a revolving table, instead of being superposed, as in the case of the new Eddystone and Bishop Rock Lighthouses. The maximum candle-power of this apparatus is 30,000,000. The total cost of the tower and buildings amounted to £16,000, while the apparatus with all its electrical generating plant cost £5,000, and the siren installation £1,200—a total, including carriages and sundries, of £23,200.

In the early days of lighthouse illumination, when coasts were but scantily supplied with lighthouse stations, which were situated at great distances apart, the old fixed lights, were all that could be desired, and served their purpose well. As the number of lights increased it was found necessary to furnish some distinction between one light and another, so as to guide the mariner upon his way in safety, and this end was in a large measure accomplished by the introduction of the revolving and occulting lights. This difficulty has, however, been met most successfully by Dr. Hopkinson's group-flashing system now so universally adopted in newer lights.

The group-flashing system, good in so many ways, has one serious disadvantage, which is that a well-marked and distinctive characteristic is obtained at the expense of power of beam. This is necessarily so, as the power of the emergent beam is a direct function of the number of beams employed. The beams are further necessarily weakened in most cases by having a larger proportion of reflecting prisms than in the single flash panel.

Since 1892 no light of over 100,000 candle-power had been installed in Scotland, while in France no fewer than ten lights of a total candle-power of 102,810,000 have either been altered to their present power or newly installed. In the second class of lights, those between 40,000 and 100,000, the number of lights in Scotland and France is equal, and in this case the total candle-power of the Scottish lights is superior to that of the French, the Scottish being 206,000 and the French only 173,000. In class 3, where the lights are between 22,000 and 40,600, the French have either newly installed or altered 31 lights to our 3 since 1892, their total candle-power amounting to 156,000 as against our 90,000. In class 4, which includes all lights between 10,000 and 22,000, the French have either freshly installed or altered 7 lights to our 2, the respective candle-powers being in France 97,000 and in Scotland 34,000. In class 5, where the lights are between 5,000 and 10,000, Scotland has added no new light, while France has either newly erected, or brought up to this standard of efficiency 6. In the sixth class, between 1,000 and 5,000 candle-power, France's total is 10 lights to 3 for Scotland. In class 7, France has to be credited with 12 lights, all installed or altered since 1894, while Scotland has neither installed nor altered any lights of this size since 1892. In class 8, where the lights are between 100 and 500, there are 12 lights in the French lists as against 5 in the Scottish, while in the last and smallest class France can claim 50 lights as against Scotland's 20.

The French lighthouse service of the present day is able to maintain both a constant yearly expenditure on maintenance and new works with an ever-increasing number of power of lights. It was in 1890 that the late M. Bourdelles, the distinguished head of the French Lighthouse Service. devised the system of lighting lights known as the Feux-Eclairs, and from that day onward the French lighthouse system has advanced by leaps and bounds. This system of lighting is universal, with the exception of our own land. The advantages are so obvious as scarcely to require pointing out, but the fact remains, nevertheless, that it is not adopted in our country.

## A CANADIAN SHIPBUILDING PLANT.

H. M. Whitney, of Boston, and Alfred J. Moxham, the general manager of the projected iron works at Sydney, C. B., are said to be making arrangements for locating a steel shipbuilding plant at North Sydney. Negotiations with the General Mining Association, looking to the purchase of association mines at North Sydney are reported to be in progress. The price mentioned is $1,500,000.

ANOTHER new book of the sea: "Pike and Cutlass;" Hero Tales of Our Navy, written and illustrated by Geo. Gibbs, 300 pages. Published by the J. B. Lippincott Co., Philadelphia, Pa. Price $1.50.

## DULUTH ORE DOCKS.

The Duluth News-Tribune has the following interesting article on the ore docks at that port:

In 1896 there were 21 ore docks in the Lake Superior region, with an aggregate of 4,438 pockets and a total storage capacity of 617,250 tons. That was at a time when the requirements were about one-half what they will be in 1900. At the opening of navigation next spring there will be 22 ore docks with a total of 5,061 pockets and a storage capacity of 834,082 tons. An increase of 623 pockets and 216,832 tons storage capacity is shown since 1896, despite the fact that No. 2 dock at Escanaba has passed out of existence in the meantime, with its 192 pockets and nearly 21,000 tons storage capacity. The net gain, after allowing for the decrease of one ore dock is, therefore, 623 pockets and 216,832 tons storage capacity. Two of the docks that will provide this handsome increase are now under construction, the Eastern Minnesota dock on Allouez bay with 250 pockets and about 6,000 tons storage capacity, and the Duluth, Missabe & Northern dock No. 3, in Duluth, with 192 pockets and 38,400 tons storage capacity. The entire increase in ore dock capacity since 1895-1896 has been at the head of the lakes. They include Missabe docks Nos. 2 and 3, Eastern Minnesota No. 2 and the the rebuilding and enlarging of Duluth & Iron Range docks Nos. 1 and 2, at Two Harbors. The estimated season shipping capacity of the ore docks of the Lake Superior region is upward of 20,000,000 tons for next year. Since January 1, 1896, ore dock capacity of the Lake Superior region will have increased fully 35 per cent. by May 1, 1900, and all of the increase has been provided by the head of the lake shipping ports, Duluth, Two Harbors and Superior.

The estimated cost of construction of ore docks is about $1,000 a pocket, but owing to an advanced cost of materials the ore docks now under construction will cost about $1,500 a pocket. By May 1, 1900, the expenditures for ore dock improvements at the head of the lakes since 1895-1896 will have approached $1,400,000.

Few people, except mining or transportation men, have any conception of the vast quantity of ore shipped out of St. Louis county this year. The total figures will be in the neighborhood of 8,250,000 gross tons; perhaps more, if the weather permits of the movement of boats for a little longer.

The ore that has been shipped out of St. Louis county this year would make a covering 40 feet deep over an area of about 85 acres. It requires 330,000 ore cars to load this much ore, 25 tons to a car, and 11,000 trains to move it, with 30 cars to a train. Iu 1892, the first year that the Mesaba range began shipping, the shipments from St. Louis county were 1,171,895 tons. The Mesaba that year contributed only 4,245 tons, less than a good sized cargo for a modern lake carrier of to-day. In seven years the shipments have increased sevenfold. They have doubled since 1895 and it is altogether likely that St. Louis county will furnish 10,000,000 or 11,000,000 tons of ore next year. There are single mines in St. Louis county to-day that will produce in one year as much as the aggregate shipments for 1892.

The development of iron mining in Minnesota is without parallel in the world's history. While the shipments from the Mesaba in 1892 were less than a single cargo of this range now and for several years, beginning with 1896 in fact, leads all other individual iron ranges in the Lake Superior region in the amount of iron ore sent forward. The Mesaba has been the direct means of bringing into existence the ore docks in Duluth, which next year will constitute the biggest ore dock plant in the country. The Mesaba range has built the Bessemer fleet and has added many boats to the Minnesota fleet, as well as to make necessary extensive ore dock enlargments at Two Harbors. The Mesaba range has been the biggest factor in the building up of lake commerce generally in the past decade. It gives promise of being such for many years to come. One of the interesting and significant features in connection with the iron ore industry is that since 1896 all of the ore dock development has been at the head of the lakes, Duluth, Two Harbors and Superior.

No. 2 dock of the Mesaba system is the largest shipping dock in the world. It has been claimed that the new Eastern Minnesota dock on Allouez Bay will be the largest in the world, but this is a mistake. The error was due to the fact that it will be the highest ore dock in the country. It will have a capacity almost equal to that of Mesaba No. 2, however.

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SIR THOMAS LIPTON contributes an article entitled "After the Yacht Race" to the North American Review, for December.

## SEASON LOSSES.

Five of the forty-two total losses this season were of passenger boats which were burned. Four of them at their docks. The total number destroyed by fire was 14, 12 foundered, 5 were lost in collisions, 10 broke up on the beach and one capsized.

## WEATHER SIGNALS.

The display of storm signals on Lake Michigan is now discontinued for the season, also on Lake Huron on Dec. 11. They will stop on Lakes Erie and Ontario after Dec. 14. On Lake Superior the date will be set by the closing of the locks at Sault Ste. Marie. Masters of boats in commission may obtain forecasts by telegraphing to the Weather Bureau at Chicago. This can be done at Government expense. Open ports on Lake Michigan will be fully advised of coming storms during the winter season.

## EASTERN FREIGHTS.

Messrs. Funch, Edye & Co., New York, report the Eastern freight market as follows:

Chartering for grain cargoes by steam has continued within the same narrow limits as during the preceding week, and any change in freights have been at the expense of rates. Some slight inquiry for room at the Atlantic cotton ports has resulted in a fixture thence, with a demand for some further room left unsatisfied, some charters being effected from the Gulf ports at somewhat easier terms. There is some demand for further timber tonnage from the Gulf, and rates for this business fairly hold their own. The enquiry for boats for general purposes is very light, and a tendency of time charters towards a lower level, owing to the decline in freight rates generally from our Coast.

Sail tonnage rates retain their firmness on a continued light spot and prospective supply, notwithstanding the volume of busiuess has been below the average.

## VISIBLE SUPPLY OF GRAIN

As compiled for THE MARINE RECORD, by George F. Stone, Secretary Chicago Board of Trade.

| CITIES WHERE STORED. | WHEAT. Bushels. | CORN. Bushels. | OATS. Bushels. | RYE. Bushels. | BARLEY Bushels. |
|---|---|---|---|---|---|
| Buffalo | 2,729,000 | 683,000 | 925,000 | 178,000 | 1,461,000 |
| Chicago | 15,054,000 | 2,335,000 | 1,065,000 | 356,000 | 57,000 |
| Detroit | 754,000 | 185,000 | 220,000 | 16,000 | 102,000 |
| Duluth | 5,944,000 | 69,000 | 186,000 | 344,000 | 66,000 |
| Fort William, Ont. | 1,690,000 | ..... | ..... | ..... | ..... |
| Milwaukee | 194,000 | 2,000 | 2,000 | 19,000 | 1,000 |
| Port Arthur, Ont. | 132,000 | ..... | ..... | ..... | ..... |
| Toledo | 1,610,000 | 933,000 | 507,000 | 8,000 | ..... |
| Toronto | 63,000 | ..... | 4,000 | ..... | 50,000 |
| On Canal | ..... | ..... | ..... | ..... | ..... |
| On Lakes | 2,775,000 | 389,000 | 627,000 | ..... | 465,000 |
| Grand Total | 56,292,000 | 11,246,000 | 6,077,000 | 1,344,000 | 3,093,000 |
| Corresponding Date, 1898 | 26,738,000 | 17,846,000 | 5,361,000 | 1,228,000 | 4,002,000 |
| Increase | 514,000 | ..... | ..... | ..... | ..... |
| Decrease | ..... | 466,000 | 234,000 | 19,000 | 682,000 |

While the stock of grain at lake ports only is here given, the total shows the figures for the entire country except the Pacific Slope.

## ASTRONOMICAL CORRECTION.

OSWEGO, N. Y., Dec. 9.

*To the Editor of the Marine Record:*

Will you please pardon me for suggesting a correction in the article "Astronomical Data for December," in your issue of December 7. The first sentence of the fifth paragraph reads "To the west, Vega, Altair, the bright stars of the constellation Andromeda."

Vega is a first magnitude star in Lyra, Altair a star of the same magnitude in Aquilla. These two constellations are far removed from Andromeda, and are themselves located in widely separated parts of the heavens.

I have taken the liberty of calling your attention to this because interest in astronomical matters is growing rapidly, and anything published in connection with that science is being read by large numbers. Yours truly,

HENRY J. CLARK.

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THE North American Review for December prints in the form of a symposium the opinions of distinguished men on the war in South Africa. James Bryce, Karl Blind, Francis Charmes, Max Nordau, Andrew Carnegie and Demetrius C. Boulger discuss the various aspects of the question. Sir Thomas Lipton talks "After the Yacht Race," and Perry Belmont discusses "Congress, the President and the Philippines." Joseph Pulitzer explains why he finds in the President's attitude to our new islands evidence that Congress has abdicated.

## JOINED FORCES.

A dispatch from Buffalo says: The boilermakers and iron shipbuilders have buried the hatchet. About a year or more ago there was some dissension among them and the two branches of labor separated. Since that time some of the men have been working incessantly to bring them together again and they have succeeded. A meeting of the iron shipbuilders was held this week, and after its conclusion it was announced that the trouble between the boilermakers and shipbuilders had been settled and that they had joined hands again.

The trouble between the boilermakers and shipbuilders was by no means a local affair. It was a national misunderstanding and affected all the men who belonged to the Brotherhood of Boilermakers and Iron Shipbuilders of the United States, the headquarters of which are in Kansas City. The recent meeting was of the same nature as those that have been held at all the big ports along the lakes and the coast. It was said that the local organization, have at present about 500 members and that the number will swell to 800 when the details have been settled and the boilermakers and shipbuilders are brought together as before. Cleveland at present has about 700 members, Lorain 900 and Chicago about 900. But those numbers will be greatly increased.

The men say the move to bring the two bodies together was accelerated by the organization of the shipbuilding trust on the lakes, which is known as the American Ship Building Co. This concern controls all the shipbuilding yards on the lakes with two or three exceptions.

## NIAGARA RIVER DAM SCHEME.

The matter of a dam at the foot of Lake Erie to raise the general level of the lakes, and incidentally improve several ports by deepening their harbors without the necessity of dredging, has assumed seriousness. It is favorably recommended by the Deep Waterways Commission, which, having already expended nearly $400,000 for surveys, is probably pardonable for feeling that it is time that it fathered some suggestion of tangible work. Representative Corliss of Detroit has prepared a bill authorizing the dam, and appropriating $800,000 for its construction. Consent of the Dominion government will be necessary, but this the promoters of the scheme think will readily be given, as Canada would reap equal benefits from the expected rise of the lakes, while the United States footed the entire bill. The exact location is to be determined by the engineers of the commission. A knowledge of the territory suggests the inference that it would be placed south of Black Rock. The report of the commission will be made to the Secretary of War some time this week, it is believed. The Corliss bill, which was drafted upon the lines of this report, supposedly makes no provision for or mention of navigable communication with Tonawanda and other down-the-river ports, either by canal or lockage; therefore, the presumption is that the benefit of other interests is contemplated at the expense of their extinction as ports of entry. Tonawanda's great lumber trade would be stricken at one fell swoop. Her iron industry also would inevitably suffer. The maritime hopes of Niagara Falls would be effectually snuffed out.

While it may be true that the facilities which Buffalo will acquire by the completion of the outer harbor and the building of docks along the lake front would enable her to take care of the vast amount of lumber and the ore which now go to Tonawanda, consideration of the future should inspire this city to oppose the dam scheme with all strenuousness. It is true that the Tonawandas, as also the Falls community, were rather unfriendly in their opposition to the Grand Island bridge project and the Mather power bridge bill, but the existing emergency is of sufficient importance to overshadow all sectional feeling. Not only intelligent Buffalonians, but many of the foremost men of the country who have an understanding of the situation are convinced of the inevitable destiny of this city to extend all along the waterfront to the Falls. The utilization of all available dockage will in time be imperative. The possibility of the great commercial importance of Grand Island, where miles of docks might be made at comparatively small expense, the water being deep to the bank, is clearly apparent. The proposed dam would manifestly destroy this wealth of future development. It is therefore the certain duty of all influences on the Niagara frontier to unite in determined antagonism to the Corliss bill. Its passage, or even any strong official indorsement of the scheme when it comes to be carefully considered may be doubted, but the only safe thing to do is to make the voice of protest emphatically heard.—The Buffalo Courier.

MARINE RECORD

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CLEVELAND, O., DECEMBER 14, 1899.

THE Erie canal should be improved without loss of time so as to offset the advantages offered by the new route via the St. Lawrence system of canals. Traffic once turned to Canadian channels may remain there and increase, all of which would be to the detriment of our coast ports, and the State of New York in particular.

A DISPATCH from Houghton Mich., dated Dec. 9, states that the last vessel has passed through Torch Lake for the season and the range lights have been discontinued. The local traders Bon Voyage and City of Marquette will return to Duluth tomorrow and lay up for the season. They would remain in commission longer if insurance for the cargoes could be obtained.

THE lake trade furnished, or could have given to marine underwriters the richest harvest in the world during the past week. The opportunity was not taken, or only partially so, and commerce was, to that extent, paralyzed. It is now coming to the time when the Omnipotent will close navigation on the lakes instead of general marine insurance agents and their clerkly help.

THE gale duly heralded by the Weather Bureau for Tuesday came along with great force. At Buffalo the register showed a velocity of sixty-five miles an hour from the south west, recorded as the heaviest blow of the season. Owing to the early advices of the Weather Bureau it is quite safe to state that a large amount of floating property was saved from destruction, it is also probable that many lives were saved.

THE old annual kick is being registered on account of the Light-House Board ordering light-ships, buoys, beacons, etc., in off their stations while navigation is still being carried on. The weather is wintry, the insurance limit has expired, a Detroit judge decided when, or rather, on what date lake navigation ceased. Notwithstanding all this there is still a large fleet at work with every present probability of sailing being continued for at least a week later.

THE Weather Bureau publishes, this week, the first snow and ice bulletin of the season. This chart is issued weekly on Tuesdays during the winter season, based upon data from regular weather bureau stations, supplemented by reports from selected voluntary observers. So far as the lake marine interests are concerned this is one of the most valuable publications issued by the Weather Bureau. In the late fall, and more particularly in the early spring, official and authentic reports regarding ice conditions at the various points on the lakes are invaluable.

## DETROIT RIVER BRIDGE AGAIN.

Representative Corliss has re-introduced his bill in Congress to permit the Detroit Union Bridge Co. to erect a bridge across the river at Detroit. It is provided that the bridge shall be high enough to permit vessels to pass under and that it shall have not more than three continuous spans with an open space of 1,100 feet in clear width between the masonry piers in the main channel. The contention has always been upon permitting any piers to be built in the channel at all. The current of the river is swift and the lake traffic enormous.

It should be clearly understood that many propellers have two or more consorts and there is always danger in the swift stream of one of the consorts fouling the pier. Permission, however, has already been obtained from the Canadian government to build the bridge, and all that is lacking is the sanction of the American government. There is an abundance of opposition to the project. The vessel interests are strongly opposed to bridging the stream and a vigorous fight may be expected. If the river could be bridged with a single span there would be no objection to the project and such a structure may become one of the engineering triumphs of the future. It is extremely improable that the Government will ever permit piers to be put in the Detroit river.

IT is possible that damming Niagara river may be a good thing; it is also probable that it may be a damaging step to take. A structure to control lake levels must control, otherwise the million dollars for its cost will be money wasted. The Secretary of War says: "The Deep Waterway Board informs me that the structure will not cost over $1,000,000 at the most, and probably not more than $800,000. Yet this dam will save the government over $1,000,000 already appropriated for deepening harbors and channels in Lake Erie and Detroit river. The Deep Waterways Board has informed me that by their plans and surveys they will recommend a dam that will raise the lower end of Lake Erie from two and one-half to three feet. This will deepen all the harbors on that lake about that much and will add from twenty inches to two feet to the depth of the water at the Limekiln Crossing. It will even raise the water of St. Clair Flats and Lake St. Clair about a foot, and will tend to hold back any permanent lowering of the level of Lake Huron by the washing out of St. Clair river, a process which has already done much damage. The dam will do away with the necessity for appropriations for deepening channels and harbors which have been growing greater and greater from year to year. For the Detroit river alone an appropriation of over $500,000 is now awaiting expenditure, and we are led to believe by recent publications that this is merely the beginning of an unending expenditure for dredging and blasting."

THE Bureau Veritas "Repertoire General" for 1899-1900, the thirtieth annual edition, has been published during the last month. The great advantage claimed for the "Repertoire General" is that as it describes all merchant vessels afloat, no matter where classed, its subscribers are saved the trouble of searching through the varions classification registers, for it shows at once whether or not each vessel is, or has been, classed in any of the principal registers.

THE year has witnessed the completion of the great fourteen-foot channel by the Canadian government between Lake Erie and deep water at Montreal, on which over $70,000,000 has been expended in completing the work.

## CANADIAN LUMBER.

The tariff of $2 a thousand feet on Canadian lumber does not keep it out of the United States. During the season just closing an immense quantity of lumber has come to this country from the Dominion, a quantity so large as to fairly stagger the people who thought the tariff would be practically prohibitive. The Bay City Tribune has frequently called attention to the enormous shipments from Canada arriving at that port, but few realized the magnitude of the trade. The receipts at Bay City during the season will not be far from 140,000,000 feet from Canada alone. This lumber has paid a duty of $27,719.07. The Saginaw customs office has collected about $2,800, so the total receipts from Canada will not be far from 150,000,000 feet. This quantity of lumber is largely in excess of the shipments from Bay City in a single season for several years. It is also independent of the receipts from other ports on which duty is not paid, and which will swell the total of lumber received at Bay City to over 200,000,000 feet.

## MARINE LEGISLATION.

The annual convention of the International Seaman's Union was held in Chicago last week, and that body completed the draft of a bill which will be laid before Congress in January to better the condition of American seamen and improve the personnel of the merchant marine.

The bill provides for the inspection of sailing ships of 200 tons and over instead of 700 tons according to the present requirements; prohibits the employment of Asiatics on American ships, compels the construction of larger and better furnished quarters for the men, names a scale for manning sailing ships and steamers according to tonnage and makes regulations for the liberation of sailors on shore from the boarding house keepers and crimps.

Sailors, while at sea, are to be divided into two watches to be kept on deck alternately for the performance of ordinary work incident to the sailing and management of the vessel, but this shall in no way limit either the authority of the master or officer or the obedience of the sailors, when in the judgment of the master or other officer the whole crew is needed for the maneuvering of the vessel or the performance of the work necessary for the safety of the vessel or its cargo.

While the vessel is in a safe harbor no seamen shall be required to do any unnecessary work on Sundays or legal holidays and nine hours, inclusive of the anchor watch, shall constitute a day's work. On all classes of ships, it is held the lookouts at present are not efficient because they do not get needed rest and thereby endanger other craft as well as their own ship. The Elbe and La Bourgogne disasters are attributed to this cause.

The employment of Asiatics is covered as follows: No Asiatics, Chinese, Japanese, Malay, Lascar, shall be employed in any capacity on board of any vessel in the United States. Failure to comply with the requirements of this statue shall make the vessel so failing liable to a penalty of $100 each effective hand less then the full and required complement and for each Asiatic employed.

It is held that the employment of Asiatics is an unjust discrimination against American seamen, and directly opposed to the understanding that the merchant marine should be the nursery of the naval reserves. The employment of the Asiatics is a menace to the lives and property of travelers and shippers, it is claimed, because of their notorious unreliability in times of emergency, a fact that has already been recognized by other governments in restrictive legislation.

## COAL.

Coal shipments from Buffalo up to Dec. 1 exceeded those of last year by nearly 300,000 tons. They are only 90,000 tons less than the banner year of 1892, when 2,852,330 tons were carried out of Buffalo.

"Chicago is about 300,000 tons short on coal this winter," said Mr. O. S. Richardson, the well known coal dealer. "The season for lake shipments is at an end and we are able to get some idea of where we stand. Lake receipts have fallen off materially owing to the ships being diverted into the iron ore trade and the light call for grain boats here, but the railroads have brought in more than usual to make up somewhat the deficit. The docks were cleaned out last spring, for stocks a year ago were 200,000 tons short of what they should have been. This leaves the shortage just about 300,000 tons.

"This can be made up during the winter months by the all rail haul, but of course the consumer must pay the extra freight. I do not anticipate so much trouble for next year. Freight rates by lake, I believe, will be lower than they were this year. If the grain trade does not bring enough boats to Chicago to load coal on the up trips we must fall back on the railroads. There will be coal enough in any event. Dealers at the head of Lake Superior are complaining of a serious shortage of soft coal. They have enough hard coal, but the railroads have been unable to deliver the bituminous coal at the Lake Erie ports for shipment by lake in sufficient quantities all through the fall."

## A NEW CONTRACT PLACED.

The Craig Ship Building Co., of Toledo, has closed a contract with the Arnold Transportation Co., for a steel passenger steamer to take the place of the Minnie M. on the Mackinac-"Soo" route. The new boat will be very fast. She will be 185 feet long, 34 feet beam and thirteen feet deep. She will have triple-expansion engines, cylinders 20, 33 and 54 inches, with 36 inch stroke. Work on her will be rushed and she will be completed as soon as possible.

## A CHICAGO COMMISSION REPORTS.

The report on river improvement offered by Alderman Raymer, chairman of the special commission, was referred to the committee on harbors, viaducts and bridges.

The report begins by showing the feasibility of the lowering of the tunnels from an engineering standpoint.

Turning from the tunnels to the problem of center pier bridges, the report shows that lake vessels of the size now being built, over 400 feet long, can only make partial use of the river at present, and mentions the fact that the government will not improve the river till the center pier bridges are removed. The commission makes the following recommendations:

These center pier bridges must be replaced with bridges of the bascule type, and of full width, for only by structures of this width can congestion of traffic over the river be avoided.

The necessity of putting the river in a condition that it will be navigable for modern vessels is of such paramount importance that proper steps should be taken at once to secure legislation for the purpose of securing the necessary funds for this work.

The rest of the report is devoted to a statement of the commercial argument in favor of the improvements recommended. After showing that the tonnage of the Chicago river is greater than that of the Suez canal or any other artificial waterway in the world except St. Mary's canal, a table is given comparing the tonnage of the Chicago harbor with the foreign trade tonnage of the world's greatest ports. Chicago's tonnage of 11,364,223 for the year ending Dec. 31, 1897, is shown to be exceeded by the foreign trade of only three ports—London, New York and Antwerp. "What the Thames and Mersey rivers are to London and Liverpool," it says, "the Chicago river is to Chicago."

The inroads into Chicago's trade which lines of commerce have made in late years are next described, and the fierceness of the competition which Chicago must meet is shown. Summing up these facts, which are fully stated, the report says:

On the north the all-rail and rail and water lines are bending every effort to attract commerce from Chicago, and from Duluth and West Superior the rail lines running to the south and southwest are pushing farther and farther into Chicago territory; the all-rail lines to the seaboard running south of Chicago are making greater and greater inroads upon traffic that belongs to Chicago, and finally, the gulf roads have pushed so far north that they, in conjunction with the roads extending southwest from the head of Lake Superior, have almost, if not completely, shut out Chicago from the territory west of the Missouri river, and have made very serious inroads into the traffic of the states east of this river.

The report finds the cause of the decline of Chicago's power, as thus shown, in the decadence of the Chicago river, and says that it is folly to hope that the railway systems will go to the additional expense of building terminals on the Calumet. Rather than do this, it says, some of the railroads have already begun to divert commerce through other ports or channels. The further argument is made that without a better harbor the price for Chicago consumption of such commodities as coal and lumber will increase. The prediction is made that were water competition eliminated rail rates would quickly and appreciably advance.

## PLATE FOR NAVAL VESSELS.

The Secretary of the Navy has transmitted to the Senate a report made by Rear Admiral O'Neill upon the subject of armour plate for naval vessels. It goes into the subject of manufacture of armour plate in great detail and concludes by recommending that the restriction of price be removed. If the restriction is not removed the report asserts that it will be impossible to continue the construction of naval vessels. As to the establishment of government armour plate factory, it is asserted that, owing to the increase in the price of materials, it is necessary to add 30 per cent. to the estimate of $3,000,000 made heretofore as to the cost of the plant.

AT the last general meeting of the Institute of Mining Engineers the address of President Longdon was devoted to a pessimistic review of the exhaustion of British coal and iron. He said the evidence all pointed to the fact that fifty years hence we shall be practically dependent on the United States' cheap coal, iron and steel. And our sons will find alliance with the United States for coaling imperative.

## ERIE CANAL TRAFFIC.

Figures have been compiled showing the total business done on the New York state canals for the season of 1899 just closed. The total tons carried was 3,686,509. Of this amount 2,425,292 tons were carried east, and 1,260,759 tons west. This tonnage was composed of 1,692,972 tons of through freight and 1,993,079 tons of way freight. Of the through freight 1,164,665 tons were carried east and 528,307 tons west. Of the way freight 1,260,627 tons were carried east and 732,452 tons west.

The canal business of 1899 measured in tons was far greater than that of any year since 1894, with the exception of 1896, when a total of 3,714,894 tons were carried.

The expenses of this department for the first eight months of 1899 are $137,458.76 less than for the same period one year ago, while the condition of the canal is better and safer now than it was at the opening of navigation.

## OBITUARY NOTICE.

CAPT. JOSEPH PAGE.

The many friends of Capt. Joseph Page will regret to hear that he died this week, at his home, 1743 Huron Street, Toledo, O. His acquaintanceship was wide among marine men. He was born in Rochester, N. Y., 63 years ago last August. He leaves a wife and two sons, Joseph E. and J. A. Page, and a daughter, wife of Dr. Marrow. He was the oldest tug man in Toledo. He owned the tugs Gallagher, George R. Hand, Lawrence, Syracuse, and Spinney. Some years ago he purchased a large farm in East Toledo, on which there are now producing oil wells. After living on the farm for four years he retired from active life. Capt. Page was a man of the strictest integrity, honorable, conscientious, a good man and good citizen, of the type of man who give the highest character to the community in which they live. Capt. Page s father was one of the earliest settlers in the vicinity of Toledo, having located near Presq'ile when the Indians were yet in the Maumee valley.

## MARINE PATENTS.

Patents issued Dec. 12, 1899. Reported specially for THE MARINE RECORD, complete copies of patents furnished at the rate of ten cents each.

638,883. Dredger. R. A. Perry, Oakland, Cal., assignor of one-half to the Atlantic, Gulf and Pacific Co., of West Virginia.

639,079. Apparatus for cleaning ships' bottoms. B. S. Miles, Gray's Summit, Mo.

639,134. Propeller. J. A. Belk, Wellington, New Zealand.

## NOTICE TO MARINERS.

LIGHT-HOUSE ESTABLISHMENT,
OFFICE OF THE LIGHT-HOUSE INSPECTOR, 9TH DIST.,
CHICAGO, Ill., Dec. 13, 1899.

Notice is hereby given that Eleven Foot Shoal light vessel, No. 60, Green Bay, has left her station and gone into winter quarters.

By order of the Light-Honse Board,

F. M. SYMONDS, Commander U. S. Navy,
Inspector Ninth Light-House District.

## LETTERS AT DETROIT MARINE POST OFFICE.

DECEMBER 13, 1899.

To get any of these letters, addressees or their authorized agents will apply at the general delivery window or write to the postmaster at Detroit, calling for "advertised" matter, giving the date of this list and paying one cent.

Advertised matter is previously held one week awaiting delivery. It is held two weeks before it goes to the Dead Letter Office at Washington, D. C.

Best, Geo.
Brewer, Chas., Magnetic
Ball, Cise
Branrford, Jno., 3, Venezuela
Bassett, Chas., Cherokee
Bennett, Alozo, Wilhelm
Craig, John, 2, Topeka
Carsivell, Thos., Cumberland
Christiansen, C., P. Sawyer
Carrier, Louis
Caragan, Thos., Empire City
Curran, D. W., Pahlow
Dwyer, Pete, 2, C. M. Eddy
Dolan, Edw., Cumberland
Ernest, Chas., China
Elmer, Capt., Leader
Graham, W. J.
Gutch, Paul, 3, Volunteer
Hale, R. H., Sitka
Hendrickson, C. J., Hiawatha
Hunt, Benj., Laura
Jones, Harry
Kemmis, Chris., C. H. Green
King, J. L.
King, Jas., Berlin
McLeod, D. L., Clinton
McCarthy, Pat, Japan
O'Donohue, M. J.
O'Day, Thos., Wilbur
Rumney, Herb, Appomattox
Rattray, Geo., C. Campbell
Rowe, M. W., Boscovel
Rohnert, Ed., P. Sawyer
Sear, Theo.
Saunders, Harry, Empire City
Sanders, Wm., Curry
Strong, Capt., Bowman
Stolp, Otto
Smith, Dave, C. A. Eddy
Tyler, H. D., Jenness
White, Bert, Mohegan
Wilson, Jno., India
Williams, Mrs. Ida

## YACHT ASSOCIATION.

At a meeting of the Lake Michigan Yachting Association, which comprises the prominent yacht clubs on the lake, the following officers were elected for 1900:

President—W. R. Crawford, of the Chicago Yacht Club.

Vice President—Alexander Mather, of the Milwaukee Yacht Club.

Secretary—H. P. Finney, of the Chicago Yacht Club.

Treasurer—W. S. Bougher, of the Columbia Yacht Club, Chicago.

Among other business transacted resolutions were adopted restricting the dimensions for yachts in the twenty-one foot knockabout class. One of the first requirements laid down is that "a boat of this class is intended to be a seaworthy craft, the limit of twenty-one feet refers to the water-line length, which admits of yachts of from thirty to thirty-five feet over-all length.

It was ruled that for center-board yachts of this class the draft shall be not less than three feet, and that for keel-boats the draft shall not be less than four feet six inches, and shall not exceed six feet. It is provided, also, that when a metal fin is used it shall be not less than half an inch in thickness.

The sail area is not to exceed 600 square feet, of which not more than 480 square feet may be in the mainsail. No battens more than thirty inches in length will be allowable in the sails. Crews are to be limited to five persons, including the helmsman, who must be an amateur. Not more than one of the five may be a professional.

## NOT AN AMERICAN CREW.

I have just received the following communication relative to a notice which recently appeared in the RECORD. In justice to the Hamburg-American line I take great pleasure in printing both statements.

HAMBURG-AMERICAN LINE,
37 BROADWAY, NEW YORK, Dec. 12, '99.

*To the Editor of The Marine Record:*

The following notice appeared in your issue of November 30th. I beg to call your attention to the fact that the statement as to the nationality of the crew on our steamer Patria has no foundation in fact. Ours is a German line, and we employ exclusively German crews.

Yours very truly,

EMIL L. BOAS,
Gen'l. Mgr. Hamburg-American Line.

"One of the most satisfactory statements in the report of the disaster to the Hamburg-American line steamer Patria, is the simple note that most of the crew were Americans. This vessel, bound from New York to Hamburg, was burned on Wednesday, off Dover, Eng. So swift was the spread of the flames in the early morning that the passengers, including many women and children, six of the latter being babes in arms, had no time to secure their clothing before hurrying into the boats. The Buffalo Courier announces that no such scenes were enacted as attended the wreck of the Scotsman, and have disgraced humanity on other similar occasions. On the contrary, the discipline was splendid, and the crew behaved like heroes. All the passengers were saved. A large steamer later came up and offered to take off the captain of the Patria and his men, but as the latter were willing to stay by him, Capt. Froelich determined to endeavor to put his ship ashore at some point of the coast where there would be a chance of saving her hull. This plan evidently was attended with much danger, as the iron plates of the vessel were in places red hot. As the press dispatch says, 'the scheme is a bold one that does credit to a gallant crew.'"

A MODIFIED design of Yarrow's water-tube boilers is being adopted in large war vessels, including a cruiser built at Elswick, Eng., for the Portugese navy, in which twelve of these boilers are being fitted, indicating 12,000 h. p., while two Norwegian ironclads of 3,850 and 4,500 tons, building in the same yard, are to be fitted with the same type of boiler, which has been largely adopted by the Dutch government in cruisers and battleships. Russia is also adopting this Yarrow boiler extensively. The chief difference between these boilers and the ordinary Yarrow boiler is that the tubes are 1¼ in. in diameter and thicker than those in the earlier design, which are 1 in. in diameter. All the parts are made stronger, and the heating surface is increased from 2 sq. ft. per i h. p. to 2.5 sq. ft., and 1 in. to 1½ in. of water represents an ordinary pressure for forced draft as against 2½ in. or 3 in.

CAPT. WM. L. ANDRES, of the North Manitou life-saving station, has been transferred to Jackson Park, Chicago. Capt. St. Peter, now of the Jackson Park station, will go to the North Manitou.

## Chicago Nautical School

1513 Masonic Temple,
CHICAGO.

W. J. WILSON,
(Late Lieutenant U. S. Navy),
Principal.

A full and complete course of instruction in lake and ocean navigation. Also special branches taught those desiring to qualify themselves for better positions in the marine service. $200 in prizes (Great Lakes Register) awarded annually to students. Students taught by correspondence. Students may begin at any time. Send for circular.

# MARINE REPAIRING
## AT MANITOWOC, WIS.

**The Goodrich Transportation Co. are prepared to do all kinds of Repair Work to Machinery. Also Joiner Work.**

Goodrich Transportation Company's Repair Shops include complete Carpenter and Joiner Shop. New Modern Machine Shop. Blacksmith Shop, including Steam Hammer, Punch and Shears, etc., Brass Foundry.

Repair Shops are adjacent to Dry Dock and are equipped with best Modern Machinery. Portable Electric Drills, etc., complete Electric Power Plant for supplying motors on board ships, and lighting. Night work a specialty. All work in charge of experienced and skilled mechanics. Charges moderate. Twenty-one feet of water alongside of shops.

## Capt. Samuel W. Gould,

265 MARCY AVE., CLEVELAND.

Gives instructions in Ocean Navigation and prepares candidates for the examinations for Master and Pilots' Licenses, before the Local Steamboat Inspectors.

—TAKE—

**Wade Park or Payne Ave. Car.**


### SHIPMENTS TO THE COAST.

*Special to The Marine Record.*

CHICAGO, ILL., Dec. 13.

William J. Conners, of Buffalo, dock contractor, newspaper owner and politician, was in Chicago yesterday looking after a project in which he has interested Chicago, Duluth, Cleveland, Buffalo and Montreal capital for an all water route for grain to the seaboard. Montreal is to be the seaboard terminal of the route, and Mr. Conners recently obtained concessions from the Harbor Commission of Montreal, with the approval of the Minister of Public Works, for the erection of three elevators with an aggregate capacity of 9,000,000 bushels, and large double-decked warehouses.

With these elevators and warehouses there is to be a fleet of modern steamers, contracts for the building of twenty-one of which are to be let within a short time, providing the present plans of organization are completed successfully, as Mr. Conners is confident they will be. The vessels will be 240 feet in length, 43 feet beam, and will draw fourteen feet of water through the canals. They will have a carrying capacity of 100,000 bushels of corn. Through the open water months they will be engaged for the greater part in carrying grain from the various lake ports to Montreal, but in winter they will be employed both in coast trade, and in carrying grain to Liverpool, for which they will be adapted.

A Chicago architect is now working on the plans of the buildings, and it is expected the preparatory work of construction will be begun within thirty days. Mr. Conners expressed the opinion the project would be in operation by July 1, 1900.

He was in consultation with some of the largest grain shippers of Chicago yesterday, and before his departure in the evening he said he had received assurances of their support in the project.

When seen at the Great Northern Hotel he said: "This is a matter in which I have been interested for a year and a half, and naturally feel much gratified at the successful conclusion of my labors, for I have no doubt of the project going through. I expect to return to Chicago within a short time, and complete the plans of organization and other necessary details. I can say I have the support of all the large grain interests of Chicago and Duluth. The representative men have expressed confidence in the practicability of the scheme. The obtaining of the concessions at Montreal was a most important matter, and with that the syndicate with which I am associated has begun preparations for establishing a carrying trade all over the water route between the Great Lakes and Montreal. The Montreal route will afford an all-water way to the sea, which can compete with the railroads because of its cheapness. Montreal is 300 miles nearer Liverpool than is New York, a decided advantage.

"Besides the three elevators at Montreal, we expect to build an elevator of 1,500,000 bushels capacity at Port Colborne, Ont., sixteen miles from Buffalo, and through grain going to Montreal in large cargoes will be broken there.

"During the season just ended, only a little more than 21,000,000 bushels of the vast amount of grain which came to Buffalo from the west by lake and rail was shipped east by the Erie canal. The great bulk of it went by rail.

"It will be the seaports that will suffer from the new route. New. York, Newport News, Boston, Baltimore, Portland, Galveston, and every port through which grain passes for export. It will simply be a contest between rail and water, and I am confident water will win."

### SEASON LAKE FREIGHTS.

Freight rates during the season just closed showed a remarkable advance over those prevailing last year. The averages were as follows, compared with 1898:

| | 1899 | 1898 |
|---|---|---|
| Iron ore, Escanaba to Ohio ports | 94.8 | 50.8 |
| Iron ore, head of Lake Superior to Ohio | 1.29.5 | 61 |
| Corn, Chicago to Buffalo | 2.7 | 1.5 |
| Wheat, Duluth to Buffalo | 2.6 | 1.6 |
| Hard coal, Buffalo to Chicago | 72.7 | 28 |
| Soft coal, Ohio ports to Duluth | 45.4 | 23.4 |

The high lake rate turned vast quantities of grain to the railroads. While in previous seasons the percentage of the grain trade from Chicago to the seaboard and export was about 65 by lake and 35 by rail, the present season has seen this ratio reversed. Well-informed vesselmen predict that during the coming year not over 25 per cent. of Chicago's grain trade will be shipped by lake. It is believed, however, that when lake rates come back to their old level, the railroads will find the lake route as sharp a competitor as ever. It is admitted by Chicago shippers, however, that there must be a reduction in the transfer charges at New York city, and an improvement in the Erie canal, if the lake route is to maintain its supremacy.

### LAUNCH OF THE REIS.

A large number of people attended to witness the launch of the steel steamer W. E. Reis at the old Globe yards on Saturday last. The launch was in every way successful. The christening ceremony was performed by Miss Mabel Mitchell, daughter of Capt. John Mitchell, manager of the Cleveland Steamship Co., which owns the Reis. On the launching stand with Miss Mitchell were Misses Mary E. Spencer, Raymond, Frances Bingham, Emma Parnell, Lois Allen, Ella White, Helen Bartow, Maud Lawrence, Marion North, Isabella Mitchell, Elizabeth Morris, Elizabeth Wedaw, Sarah Mitchell, Gertrude Mitchell, Ethel Forbes and Grace True, Mrs. Capt. John Mitchell, Mrs. R. L. Newman, Mrs. John Wedow, Dr. and Mrs. E. D. Page, Mrs. Sanford, Mrs. Capt. Alfred Mitchell, and Mrs. Clista Mitchell. Among others who witnessed the launch were Mr. W. L. Brown of Chicago, president of the American Ship Building Co.; F. W. Wheeler of Bay City, Capt. Fred. LaSalle of Duluth, James C. Wallace, Robert Wallace, R. L. Ireland, Capt. M. P. Parsons, Capt. Alfred Mitchell, Philip Morris, Capt. John Mitchell, Martin Mullen, Capt. C. B. Galton, Capt. W. McGregor and Fred Lane.

The new boat is a sister ship to the H. C. Frick of the same line. She is 436 feet over all, 416 feet keel, 50 feet beam and 28 feet deep. She will be equipped with latest improved machinery and will have everything modern for the rapid handling of cargoes. The Reis will carry about 6,000 tons. She has been chartered for next season, to carry ore from the head of Lake Superior, at $1.25. The Cleveland Steamship Co. now has three first-class steamers. They are the M. A. Hanna, H. C. Frick, and W. E. Reis. Capt. C. B. Galton, who brought the steamer H. S. Holden out will command the Reis, and William Fetting will have charge of her machinery.

### NOTES.

With the continual development of the oil-in-bulk trade, the likelihood of liquid fuel being more generally adopted no doubt increases, and thus it will be interesting to note that a new system of burning liquid fuel is introduced. The invention of Mr. J. J. Kermode, of Liverpool, differs from most other systems in that the oil is first vaporised by being mixed with hot air supplied under pressure. Where vaporising has been effected by the direct use of steam successful results have been obtained, but the steam used to spray the oil is practically lost, whereas, in Kermode's system, all the steam used for driving the blowing machinery goes to the condenser and is available for use again. A series of trials have been successfully carried out with Kermode's system applied to a marine boiler at the works of the Wallsend Slipway and Engineering Company, Ltd., Wallsend-on-Tyne, and also at Messrs. Bayliff's Wirral Foundery, Birkenhead. With Borneo crude oil nearly 13 lbs. of water from and at 212 degs. Fahr. were evaporated with 1 lb. of fuel.

As to the origin of the practice of fitting triple screws, the Chief Constructor of the Russian Navy has recently pointed out the work of the late Dr. A. C. Kirk in the matter. Dr. Kirk made a model and had it carefully tried on Loch Lomond, at the instigation of Capt. Artsayooloof, to determine the efficiency of twin propellers, with and without the center propeller in position, and with all three propellers in use. He found that up to 15 knots the resnlt, so far as propulsive efficiency was concerned, was the same whether the total power was divided between two or three screws, but that for higher speeds it was possible that the division of the power among three screws would be advantageous, although the data were not conclusive. The dragging of the center screw due to working only the two side screws, increased the power required for 13 knots speed by 11 per cent. In the Lividia the actual percentage of increase in such a case was 14 per cent. He therefore advised the Russian government that the dividing of the power between three screws was at any rate perfectly safe; that the steering would be improved by the third screw; and at very low cruising speeds, the third engine would be an admirable thing.

REAR ADML. GEO. W. MELVILLE, U. S. N., Engineer in Chief, delivered an address on Dec. 5 at the opening session of the twentieth annual convention of the American Society of Mechanical Engineers, New York City, on "Engineering in the United States Navy; Its Personnel and Material." Among other things, Admiral Melville said the innovation of triple screws, such as propel the U. S. S. Columbia, had proved a success, and justified itself in the obtaining of greater propulsive efficiency with economy, and that it is probable that triple screws will be provided for the larger ships of the new programme. He referred to the development and utillization of two engineering schemes in the late war, viz., the repair ship Vulcan and the distilling ship Iris. The Vulcan, the Admiral said, was fully equal to anything needed for the rehabilitation of a fleet short of a shipyard. He declared that not only does the creation but the operation and the maintenance of the modern ship of war depend upon the mechanical engineer. The brilliancy of the victory off Santiago, he said, was due to the care and foresight of Chief Engr. Milligan, of the Oregon. Admiral Melville said that it is generally admitted that the machinery of our Navy has been in all respects fully abreast of the latest developments, and sometimes we have taken the lead.

## REPORT OF THE WATERWAYS COMMISSION.

The report of the Deep Waterways Commissioners was completed this week and forwarded to Secretary Root at Washington. The report contains valuable, important and interesting data, including the researches of the commissioners during the past two years relative to the Great Lakes, their levels and characteristics. The subject has been taken up from the broadest standpoint and the report is far more complete than has been usually submitted by commissions of this nature nothing being left to speculative engineers who might follow the present commissioners.

In addition to the report is a compact statement summing up the situation, and supplementing data secured after the completion of the report proper. This is probably all that will ever be read by the members of Congress, to whom the matter is referred, and the commissioners have incorporated in the supplemental statement all that is necessary to have the intention of the commission thoroughly understood.

The bill introduced a day or two ago by Congressman Corliss authorizing the construction of the dam to prevent the escape of water from Lake Erie, asks for $800,000 to be made immediately available for the erection of the regulating works as proposed. This amount will in the judgment of the engineers, cover the entire cost of the regulatiug works unless the proposed canal to Lake Ontario is incorporated in the improvements. This would add considerable expense and would delay the construction of the dam. For this reason it would probably be made a future issue.

## MECHANICAL STOKERS.

The lake cargo steamer, Pennsylvania, has been fitted up with mechanical stokers by the American Stoker Company, and has been submitted to trials by two officers of the United States Navy. The hull dimensions of the Pennsylvania are 450 ft. over all 50 ft. beam, and a draught of 18 ft., at which her displacement is 10,153 tons. The engines are of the quadruple-expansion type, designed for a maximum of 1,600 i. h. p., and are supplied with steam at 250 lbs. pressure by two Babcock and Willcock water-tube marine type boilers, which have a total weight of 145,860 lbs. empty, and contain 33,492 lbs. of water. The stokers are of the underfed class, the fuel being pushed into the furnace from the hopper by means of a screw conveyor working below the level of the grates. As the fuel is fed forward the fresh coal is pushed up from below, and causes the partly burnt fuel, ashes, etc., to flow over on to the side grates, where the combustion is completed. The fuel used on the trials, of which eight were made, five being each of six hours' duration, was an inferior grade of slack coal containing a large percentage of refuse, yet the report of the tests states that steam was well maintained throughout, and smoke was practically absent, save when the fires are being "sliced" or clinkered. The evaporative efficiency was excellent, being equivalent to 8.8 lbs. of water from and at 212 deg. Fahr. per pound of coal, which was of poor quality. Experiments are being still further conducted and it is considered that more perfect applicances will result in the near future. Mr. Robert Logan, Cleveland, a consulting engineer, has much to do with the most recent tests and mechanical changes in the present stoker.

## ACTIVITY IN COAST SHIPYARDS.

In his annual address before the Society of Naval Architects and Marine Engineers, read in his absence, Clement A. Griscom, president, said: "The large number of vessels purchased by the Government last year for the use of Army and Navy, together, with increasing use of steam vessels in the coasting trade, has produced the greatest activity ever seen in our coast ship yards, both on the Atlantic and Pacific oceans. The orders for large steel steam vessels now taken exceed largely those of any year in our history. The record on the Great Lakes is such as to tax the capacity of the ship yards of that district until the fall of 1900. There are now building or to be built on the Lakes, 26 steel vessels of large size of an aggregate value of about $8,000,000, and an aggregate carrying capacity of 154,000 gross tons. These vessels comprise, one passenger vessel, two steel barges at 7,000 tons capacity each, five steamers of 3,000 tons capacity, suited to trade between the Great Lakes and the Atlantic seaboard, and 18 steam freight vessels of about 6,000 tons capacity. We have also witnessed in the past year the entrance of lake shipbuilders into the Atlantic trade. On the seacoasts we have the unusual condition of nine steamships building for ocean commerce. At least nine large steamers, recently built, have been added to the coasting or West India trade in the past year."

ON the occasion of a ship springing a leak, her pumps are set to work to get the water out as fast as it comes in. Instead of this, it is suggested by a writer in the American Machinist, that air pumps be used to force air into the leaky compartment and thus force the water back through the hole where it entered. There is, it is remarked, a means of expelling water from the filled compartments so obvious as to render it a matter of wonder that engineering skill has not put forward the plan, simply to close the hatches of the flooded compartments and drive the water out by forcing air in; nor would it make the slightest difference how large the holes might be in the bottom, as the water would be expelled and kept out on the same principle as the old-fashioned diving bell.

## NOTICE TO MARINERS.

UNITED STATES OF AMERICA—NORTHERN LAKES AND RIVERS—MICHIGAN.

TREASURY DEPARTMENT,
OFFICE OF THE LIGHT-HOUSE BOARD,
WASHINGTON, D. C., Dec. 6, 1899.

GRAND TRAVERSE LIGHT STATION.

Notice is hereby given that, on or about December 20, 1899, a 10-inch steam whistle will be established at this station, on the northwesterly extremity of Light-House Point, westerly side of the entrance to Grand Traverse Bay, northeasterly part of Lake Michigan, to sound, during thick or foggy weather, alternate blasts of 3 and 6 seconds' duration separated by alternate silent intervals of 12 and 24 seconds, thus:

| Blast | Silent interval | Blast | Silent interval |
|---|---|---|---|
| 3 sec. | 12 sec. | 6 sec. | 24 sec. |

The fog-signal building is a buff-brick house, with red roof and a tall chimney, and stands 160 feet S. 42° W. (SW. ¼ S.)from the light tower.

By order of the Light-House Board:

FRANCIS J. HIGGINSON,
Rear-Admiral, U. S. Navy, Chairman.

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LIGHT-HOUSE ESTABLISHMENT,
OFFICE OF THE LIGHT-HOUSE INSPECTOR, 9TH DIST.,
CHICAGO, ILL., December 11, 1899.

LIGHT VESSELS—Notice is hereby given that light-vessels Nos. 55, 56 and 57, Straits of Mackinaw, Lake Michigan, and light-vessel No. 60, Green Bay, were directed to remain on their stations until December 10, 1899, and later if the lives of the crews and the government property are not endangered.

Due notice will be given when the light-vessels have left their stations for the winter.

By order of the Light-House Board.

F. M. SYMONDS, Commander, U. S. N.
Inspector 9th L. H. District.

A Chicago dispatch states that the total lost list on the Great Lakes this season amounts to 100, of which number 51 occurred by the foundering of vessels, and 32 persons lost overboard, while 6 were killed by falling through open hatchways. Six passengers on lake steamers committed suicide by jumping overboard. The Niagara disaster last week is the worst of the season. Lake Erie furnished only one other of importance, the foundering of the steamer Margaret Olwill on June 29th, by which nine lives were lost. Although Erie is the shallowest and usually considered the most dangerous of the lakes, Huron leads this year in the number of wrecks, with two schooners foundered and one which wus sunk in a collision, the three disasters involving the loss of fourteen lives. The list of fatalities is this year the largest in several years, but the property loss is the lowest in a decade. The dreaded fall season has been remarkably free from wrecks, the loss of the Niagara being the only serious casualty reported up to date for the fall season.


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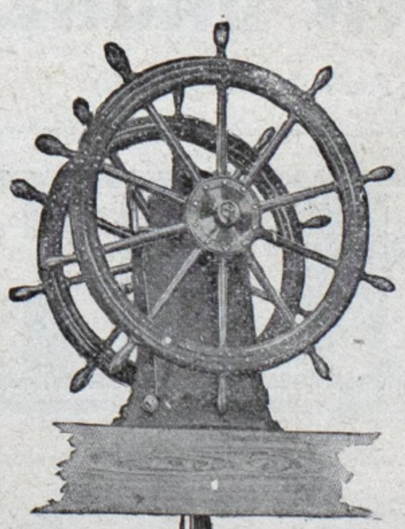

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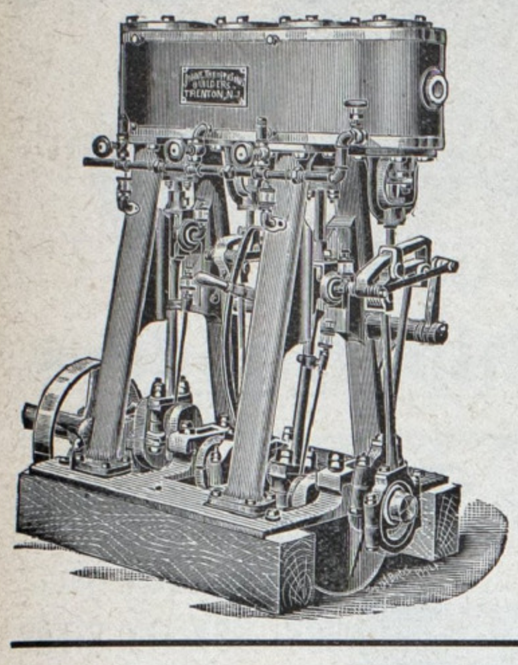

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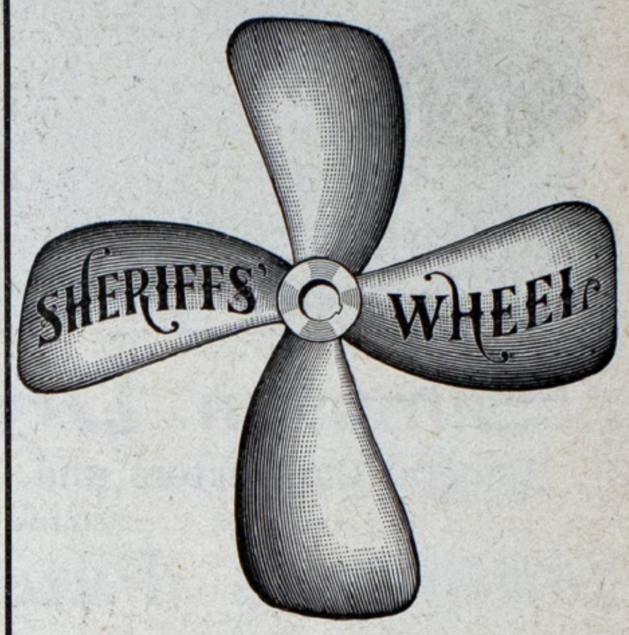


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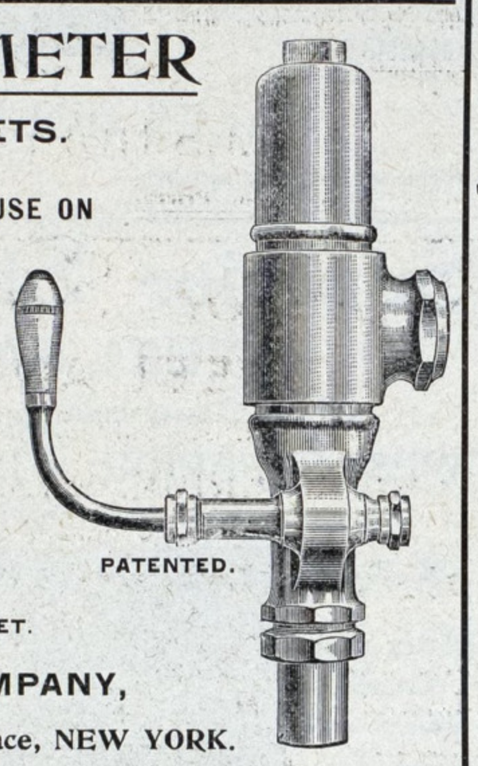

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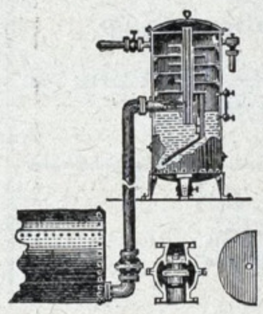

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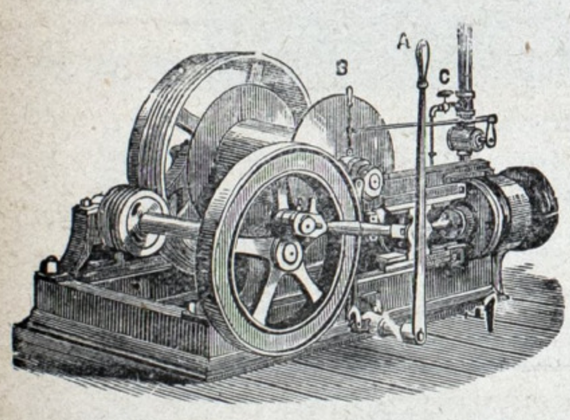


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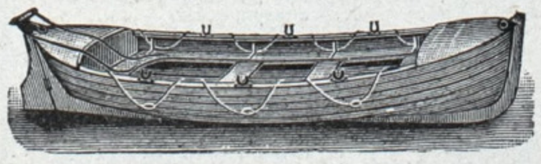

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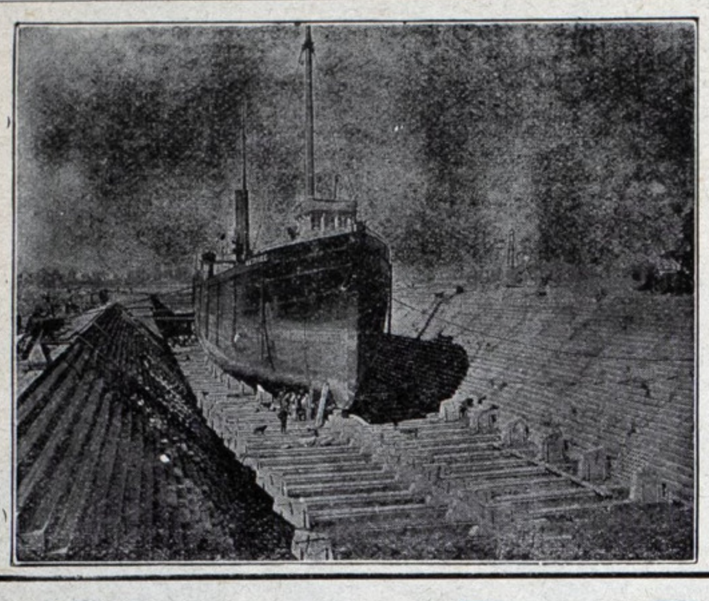

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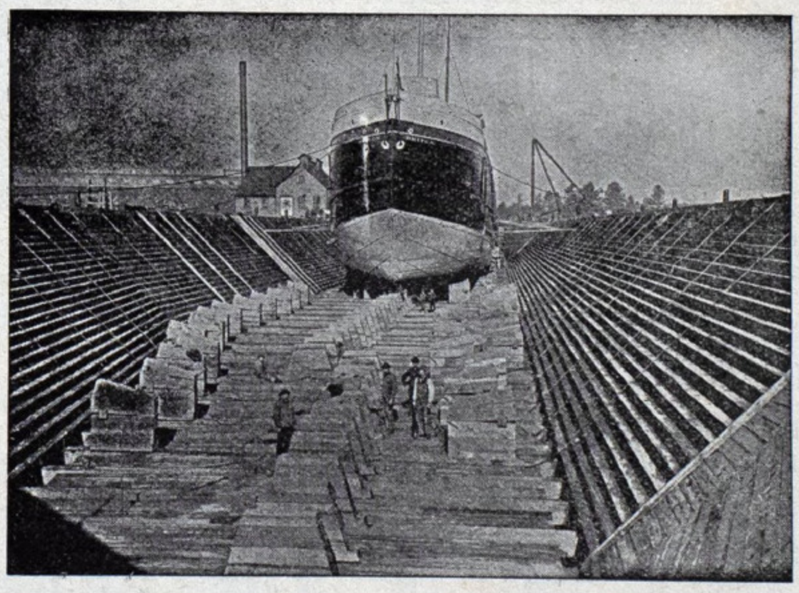

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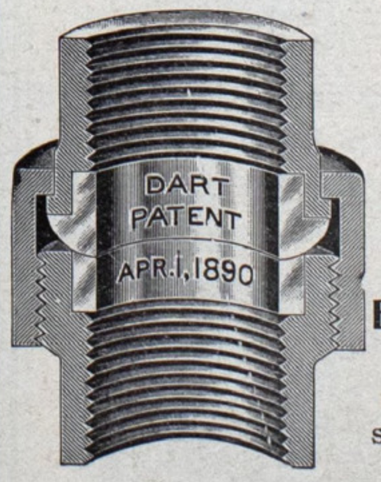


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